

**WHAT IS WIEGAND?**

# WHAT IS WIEGAND

- The Wiegand interface uses three wires, one of which is a common ground and two of which are data transmission wires usually called DATA0 and DATA1
- Data0 sends 0's
- Data1 sends 1's
- Wiegand ground is a reference ground

# WHAT IS WIEGAND

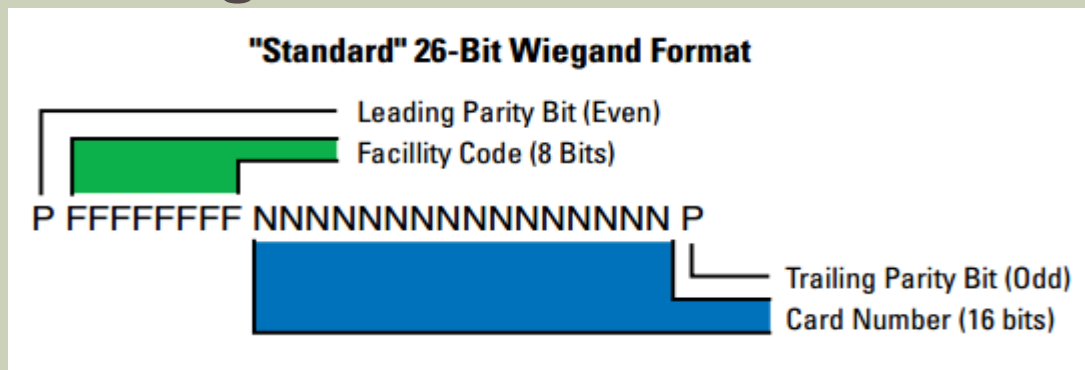
- Users ID's , templates , identifiers, credentials, card numbers, authorization all having the same meaning
- *Which means a sequence of characters used to identify, such as a variable or a set of data*
- example, when someone credentials are **123** in Decimal its **1111011** in binary
- In this example
- Data 0 sends 0
- Data 1 sends **111111**

# ACCESS CONTROL PANEL(ACP)

- The control panel compares the credential's number to an access control list, grants or denies the presented request, and sends a transaction log to a database. When access is denied based on the access control list, the door remains locked. If there is a match between the credential and the access control list, the control panel operates a relay that in turn unlocks the door
- In the example previous
- User 123 sends 1111011 in binary to ACP
- Access Control panel converts 1111011 to User 123 and verifies if this user is granted or denied

# COMMON WIEGAND 26 BIT

- The original Wiegand format had one parity bit, 8 bits of facility code, 16 bits of ID code, and a trailing parity bit for a total of 26 bits. The first parity bit is calculated from the first 12 bits of the code and the trailing parity bit from the last 12 bits
- 26 bit wiegand looks like this



# COMMON WIEGAND 26 BIT

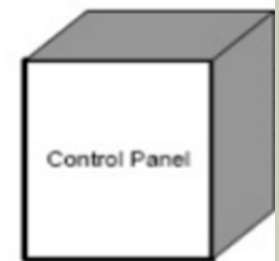
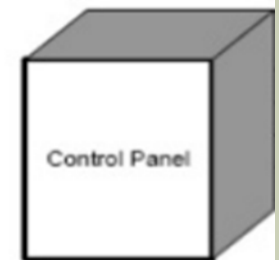
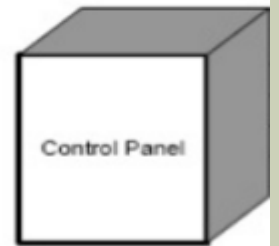
- With this 26 bit wiegand
- PFFFFFFFFNNNNNNNNNNNNNNNNNP
- P=Parity =1 bit
- F=Facility code =8 bits long
- N=Card number =16 bits long
- P=Parity =1 bit
  
- Total  $1+8+16+1=26$  Bits

# COMMON WIEGAND 26 BIT

- PFFFFFFFFNNNNNNNNNNNNNNNNNP
- P=Parity 1 bit
- F=Facility code =8 bits long=11111111=255
- N=Card number =16 bits  
long=1111111111111111=65535
- P=Parity 1 bit
  
- In this example the Facility code biggest number can be 255
- The ID, Card number etc biggest number can be 65535

# EXAMPLE OF WIEGAND TO ACP

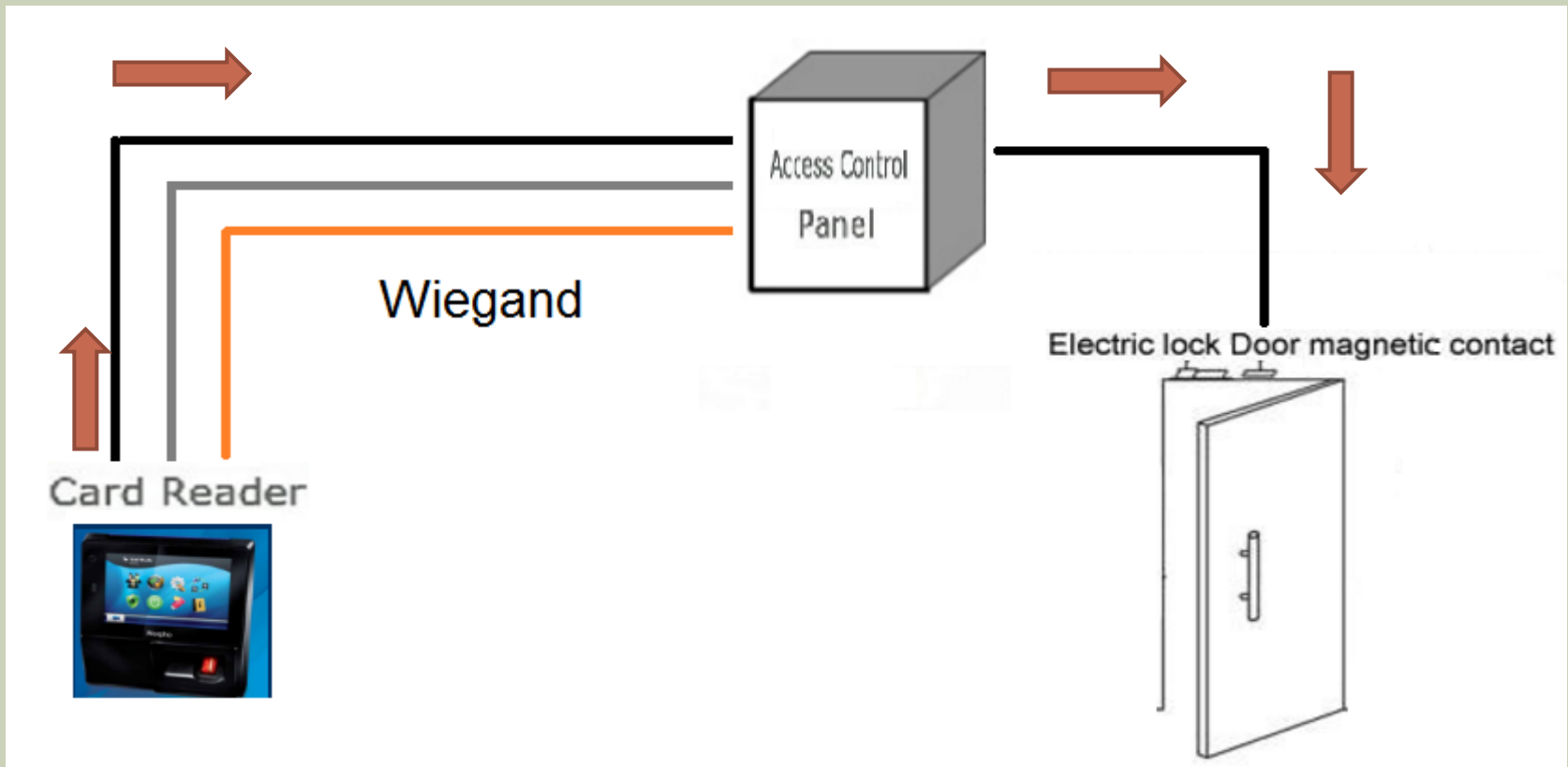
- Wiegand gets sent to a ACP
- Data0
- Data1
  
- Our example from before User 123= 111101
- Data0=0
- Data1=111111
- Control Panel verifies User 123
  
- User 123





# EXAMPLE OF A FULL SYSTEM

- Wiegand lines from card reader to ACP
- ACP sends signal to Door contact



# RECOMMEND WIRING

- For 18 AWG, the maximum cable distance is 500 ft. (150m); for 20 AWG, the maximum is 300 ft. (90m); for 22 AWG, the maximum is 200 ft. (60m).
- Three-conductor wire (shielded recommended) is required for Data 0, Data 1, and WGND.\*
- Connect WGND\* to ACP reader common (0VDC).

# TROUBLESHOOTING

- When no data is being sent, both DATA0 and DATA1 are pulled up to the "high" voltage level – usually +5 VDC
- Using a meter, check VDC between Data0 and Wiegand ground and Data1 and Wiegand ground