



WIEGAND TECHNOLOGY

OVERVIEW

Wiegand Cards were the most popular identification cards in the 1980's. Wiegand Cards were factory coded with magnetic wires embedded in plastic. The "Wiegand Interface" became the de facto industry standard for Card Reader communications to Access Control Panels. Most Access Control Systems accept Readers that are compatible with the "Wiegand Interface" both at a signaling level and for card data formatting. Wiegand data transmission utilizes two data wires, and the card data uses a 26-bit data format. For a product to be compatible with the "Wiegand Interface" it must be compatible with both the data signaling (electrical) standard as well as the data formatting (numeric content) standard.

From an electrical standpoint, all peripheral devices within a Security System must be electrically compatible with its Controller. Many Controllers currently in use were designed to accept the Wiegand standard for data signaling. The Wiegand standard is significantly different from clock/data. If another Reader technology device is connected to a Wiegand System, it must be electronically compatible with the Controller.

SIGNALING

Wiegand signaling standard utilizes two data lines to carry Card data to the Controller.

Data 1 - carries the "1" bits of data stream to the Controller.

Data 2 - carries the "0" bits of data stream to the Controller.

Figure 1 represents a Wiegand data stream for the binary value "01101". Each dip in the line represents a change from 5V to 0V, thus communicating the bit to the Controller.

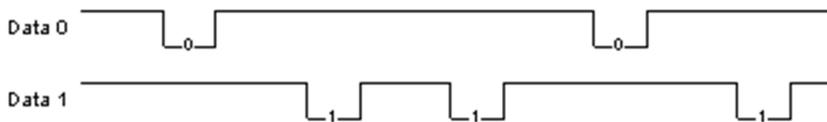


Figure 1 Sample Wiegand data stream (01101)

DATA FORMAT

Wiegand data format is characterized by the total bit count and the distribution of data fields on a Card. Figure 2 illustrates the use of 26-bit Wiegand (the most commonly used Wiegand data format).

This Wiegand format consist of:

1 parity bit 8-bit facility code 16-bit User ID 1 parity bit (1+8+16+1=26 bits)

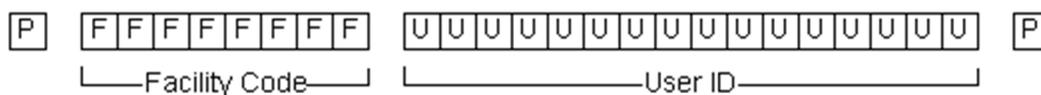
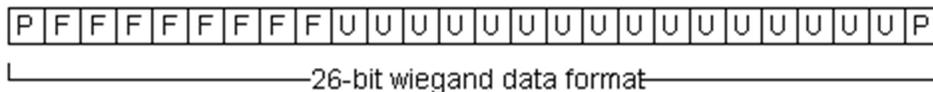


Figure 2 Sample Wiegand 26-bit format

Understanding the information contained in the 26-bit Wiegand format provides the ability to decode data to extract the facility code and user ID fields.