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DSX Access Systems, Inc.

What is Clock and Data

Clock & Data Signaling Method

Signaling refers to the electrical connection between the card reader and the panel. Magstripe card readers typically utilize the "clock/data" signaling method. Magstripe signaling is supported by many of the newer access control panels. For compatibility reasons, magstripe readers developed for access control applications also support Wiegand signaling so that magstripe card readers can be used on older, Wiegand only systems.

Magstripe signaling utilizes two wires, called "clock" and "data". The data line is used to send all the binary data to the panel. This is accomplished by changing the state of the voltage on the line. Five (5V) volts is equivalent to a "1" bit, and zero (0V) volts is equal to a "0" bit. By changing the state from high to low, the coded binary data from the stripe on the card is sent to the panel.

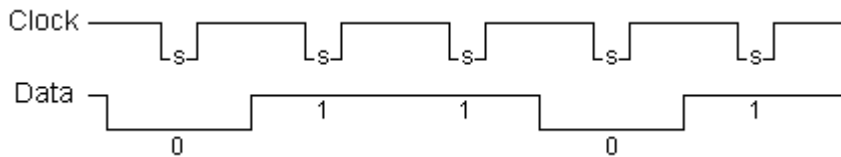


Figure 1 Clock/Data Signaling (01101)

The second wire used for clock/data signaling is used to tell the panel when to sample the data line. Each time a bit of data is sent down the data line, a pulse is sent down the clock line, instructing the panel to take a "sample" of the data line and record the next bit.

Wiegand signaling is significantly different. It uses two separate data lines to pass data to the panel. They are called "Data 1" and "Data 0". As the names convey, Data 1 is used to carry the "1" bits to the panel, and the Data 0 line carries the "0" bits. For both data lines, the voltage is normally high (5V). When a bit is being signaled, the voltage on the appropriate line is pulsed to zero (0V) volts.

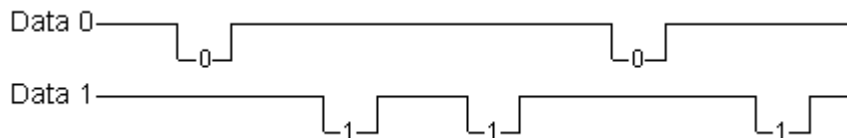


Figure 2 Data1/Data0 signaling (01101)

The panel listens on both data lines and records the bits as they arrive.