

# Dual Relay Wiegand-to-RS232 Bidirectional Converter (MA1406)

**MaCaPS MA1406** is a Dual Relay Wiegand-to-RS232 Bidirectional converter. The converter can automatically convert Wiegand input from 3-bit up to 42-bit to a formatted ASCII string. When the formatted ASCII string is used as input to the RS232 port of another MA1406 unit, the formatted ASCII string is reconverted to Wiegand format output. Moreover, the MA1406 has two digital switch inputs and two on board relays. Depending on the values of the digital switch inputs, commands are sent through the RS232 port to control relays on the other MA1406 board.

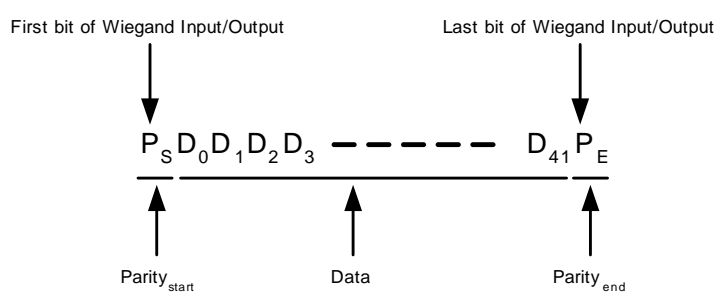
## 1 Specification:

### 1.1 Communications:

9600 BPS ASYNC, 8 bits, 1 Stop, No Parity.

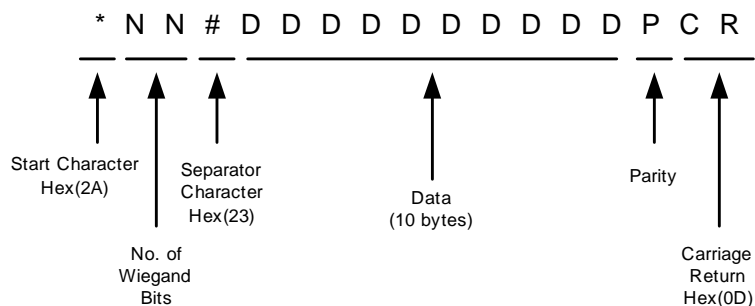
### 1.2 Wiegand Input/Output Format

The format of the Wiegand bit stream is shown as follows:



### 1.3 RS232 Input/Output Format

The format of the RS232 is in the form of 16-byte ASCII string (In Hex format) as follow:



The **Parity Character P** is decoded as follows:

| RS232 Side | Wiegand Side   |                |
|------------|----------------|----------------|
| P          | P <sub>S</sub> | P <sub>E</sub> |
| 0          | 0              | 0              |
| 1          | 0              | 1              |
| 2          | 1              | 0              |
| 3          | 1              | 1              |

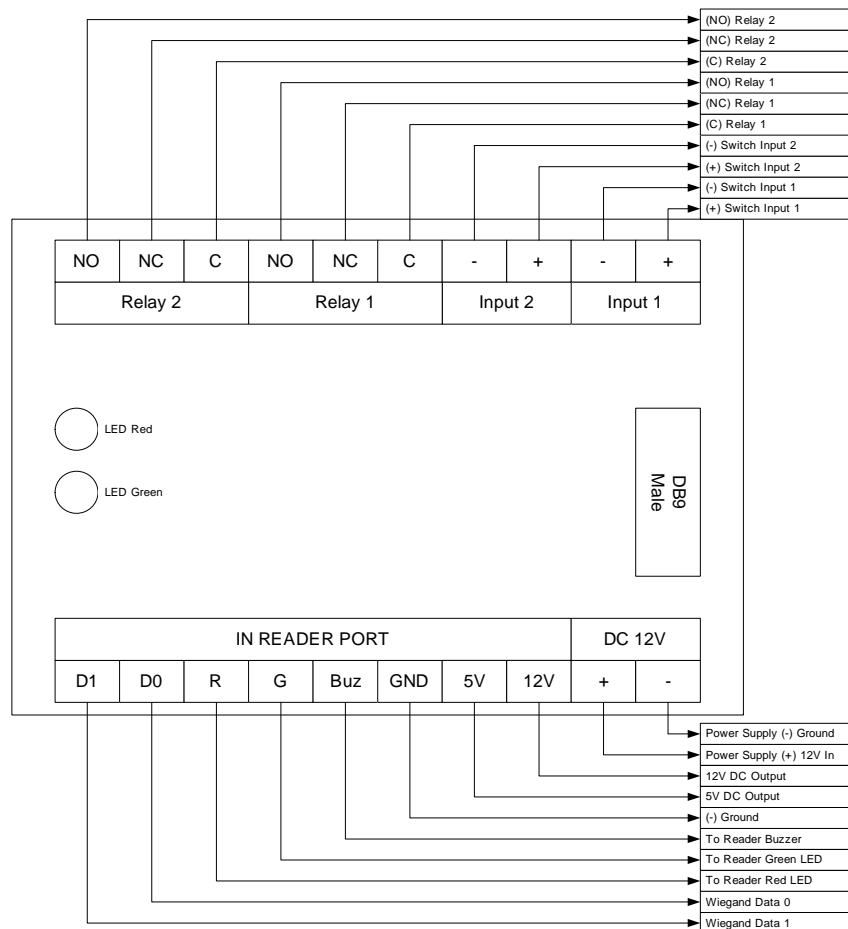
### 1.4 Command Data:

| 4 Bytes Hex Value   | Description                            |
|---|--|
| 02 <sub>H</sub> 31 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Reader Green LED               |
| 02 <sub>H</sub> 31 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Reader Green LED              |
| 02 <sub>H</sub> 31 <sub>H</sub> 32 <sub>H</sub> 03 <sub>H</sub> | Toggle LED (Bi-Color LED Turns Orange) |
| 02 <sub>H</sub> 32 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Reader Buzzer                  |
| 02 <sub>H</sub> 32 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Reader Buzzer                 |
| 02 <sub>H</sub> 33 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Converter LED                  |
| 02 <sub>H</sub> 33 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Converter LED                 |
| 02 <sub>H</sub> 34 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Converter Relay 1              |
| 02 <sub>H</sub> 34 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Converter Relay 1             |
| 02 <sub>H</sub> 35 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Converter Buzzer               |
| 02 <sub>H</sub> 35 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Converter Buzzer              |
| 02 <sub>H</sub> 36 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Reader Red LED                 |
| 02 <sub>H</sub> 36 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Reader Red LED                |
| 02 <sub>H</sub> 37 <sub>H</sub> 30 <sub>H</sub> 03 <sub>H</sub> | Turn on Converter Relay 2              |
| 02 <sub>H</sub> 37 <sub>H</sub> 31 <sub>H</sub> 03 <sub>H</sub> | Turn off Converter Relay 2             |

## 2 Block Diagram

### 2.1 Pin Connectors

The pin connections of the MA1406 is shown in the following figure.



### 2.2 DB 9 Male

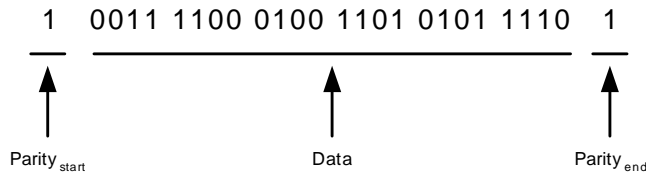
1. DCD Unused
2. TX data from converter
3. RX data from terminal
4. DTR Unused
5. Ground
6. DSR Unused
7. RTS Unused
8. CTS Unused



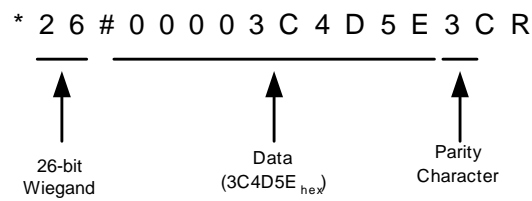
### 3 Example

#### 3.1 Wiegand-to-RS232

Input: Wiegand (26-bit)



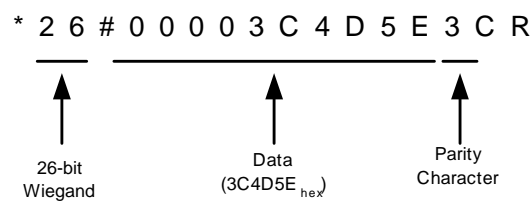
Output: 16-byte ASCII string from RS232 port



#### 3.2 RS232-to-Wiegand

This is a reversed process of Wiegand-to-RS232

Input: 16-byte ASCII string to RS232 port



Output: Wiegand (26-bit)

