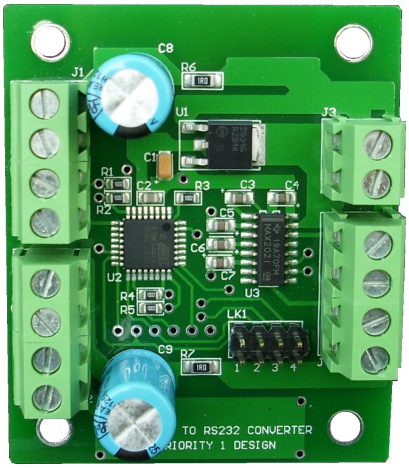
WIE232-A
Dual Wiegand to RS232 Converter.

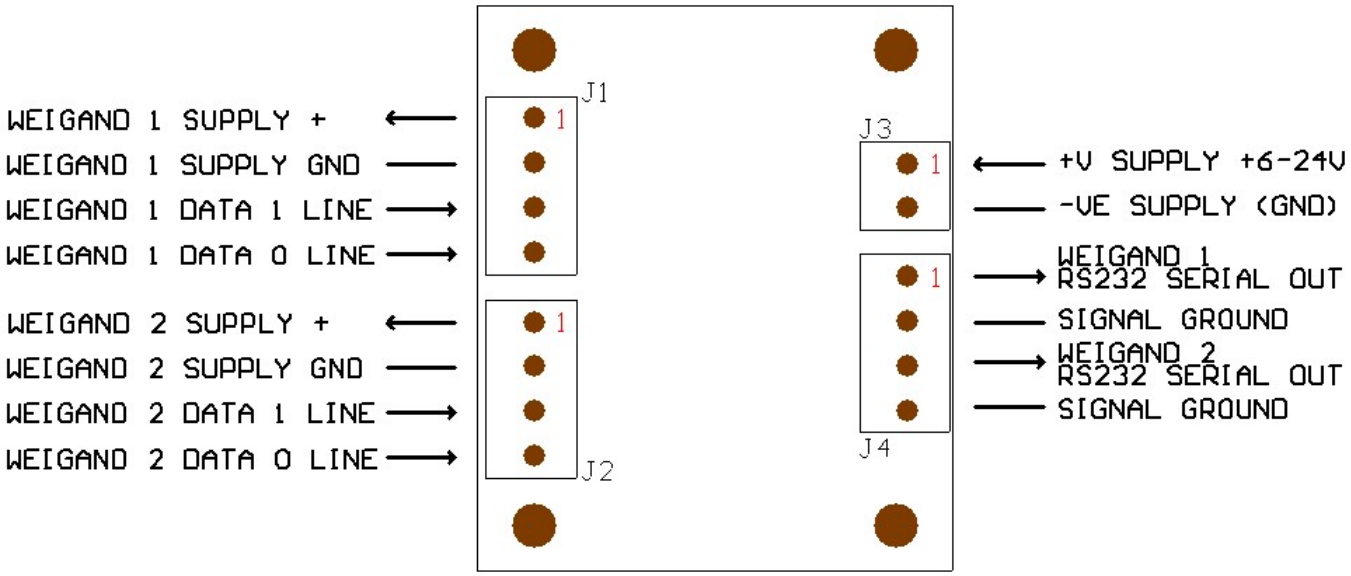
Designed for embedding into products manufactured by third-parties, this Wiegand to RS232 converter is designed with 2 ports for taking up to 2 Wiegand sources using Wiegand 26, or Wiegand 37 bit format and converting it to a RS232 data stream at 9600 Baud.

- **Input connectors for 2 separate wiegand streams.**
- **Two RS232 output ports.**
- **DC operation from 6.0V - 24.0V dc.**
- **Wiegand 26 bit format**
  Wiegand 34 bit format
  Wiegand 37 bit format (*1)
  Auto Wiegand detection up to 48 bits.
  Generic Wiegand detection up to 48 bits.
  Tecom 27 format.
- **Outputs hexadecimal ASCII characters at 9600 Baud.**
- **Small unit size of 53 x 63mm**
- **4 mounting holes**



(*1) Other formats available on request.

Connector Pin Description:



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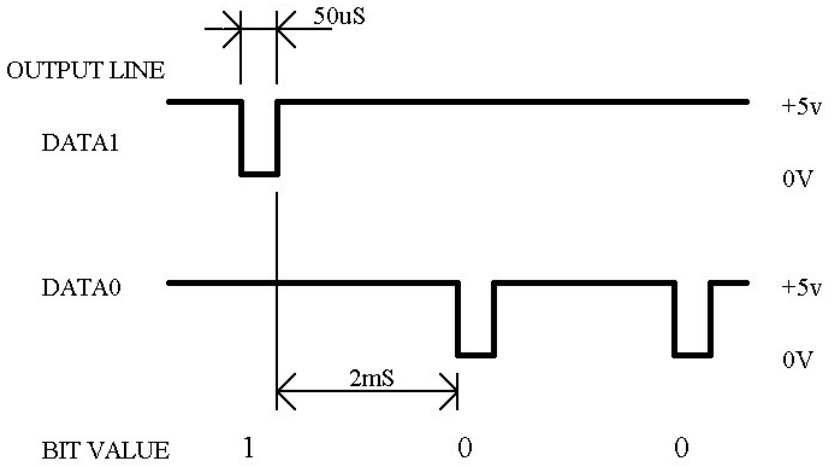
Wiegand input format description:

Wiegand protocol provides 2 lines for data transfer. A pulsed transition on the DATA1 line indicates a logic 1 bit, while a pulsed transition on the DATA0 line indicates a logic 0 bit. In their idle state both lines are held high. During data transfer the appropriate logic line will pulse low for 50uS followed by a period of 2ms where both lines are held high. In this fashion each bit is transmitted in sequence until all bits are sent. The end of the transmission is signaled by both lines being held high for more than 50mS. The following figure shows an example of the timing sequence for Wiegand protocol.



Wiegand 26 input format description:

Wiegand 26 protocol is defined as a stream of 26 bits, consisting of 1 Even parity bit, 24 data bits, and 1 Odd parity bit.

Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Note	P	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	P
	P	E	E	E	E	E	E	E	E	E	E	E	E													
														O	O	O	O	O	O	O	O	O	O	O	O	P

Note:

E: Even 0: odd P: parity bit D: DATA

The WIE232-A will read a signal presented in Wiegand 26 format and after checking for parity and bit length will convert the data stream to a serial RS232 output on the corresponding output connector. As only 24 bits of the 26 bit stream is data the string is converted to 6 ASCII coded characters representing 24bits in hexadecimal coding.
The format for this is:

XXYYZZ<crn> where XX are the hexadecimal representation of bits 1-8
YY are the hexadecimal representation of bits 9-16
ZZ are the hexadecimal representation of bits 17-24
<crn> is a carriage return character $0D

Wiegand 34 input format description:

Wiegand 34 protocol is defined as a stream of 34 bits, consisting of 1 Even parity bit, 32 data bits, and 1 Odd parity bit.

Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Note	P	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	P
	P	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																	
																			O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	P

Note: E : Even O: odd P: Parity bit D: data

The WIE232-A will read a signal presented in Wiegand 34 format and after checking for parity and bit length will convert the data stream to a serial RS232 output on the corresponding output connector. As only 32 bits of the 34 bit stream is data the string is converted to 8 ASCII coded characters representing 32bits in hexadecimal coding.
The format for this is:

KKXXYYZZ<crn> where KK are the hexadecimal representation of bits 0-7
XX are the hexadecimal representation of bits 8-15
YY are the hexadecimal representation of bits 16-23
ZZ is the hexadecimal representation of bits 24-32
<crn> is a carriage return character $0D

Eg:

AA005322<crn> represents the wiegand data of AA005322 arriving on port 2

The serial output stream is sent at 9600 Baud, 8 data bits, no parity, 1 stop bit.

Wiegand 37 input format description:

Wiegand 37 protocol is defined as a stream of 37 bits, consisting of 1 Even parity bit, 35 data bits, and 1 Odd parity bit.

Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Note	P	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	P
	P	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																		
																				O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	P

Note: E : Even O: odd P: Parity bit D: data

The WIE232-A will read a signal presented in Wiegand 37 format and after checking for parity and bit length will convert the data stream to a serial RS232 output on the corresponding output connector. As only 35 bits of the 37 bit stream is data the string is converted to 9 ASCII coded characters representing 35bits in hexadecimal coding.
The format for this is:

MKKXXYYZZ<crn> where M is the hexadecimal representation of bits 1-3
KK are the hexadecimal representation of bits 4-11
XX are the hexadecimal representation of bits 12-19
YY are the hexadecimal representation of bits 20-27
ZZ is the hexadecimal representation of bits 28-35
<crn> is a carriage return character $0D

Eg:

1AA005322<crn> represents the wiegand data of 1AA005322 arriving on port 2

The serial output stream is sent at 9600 Baud, 8 data bits, no parity, 1 stop bit.

Auto Wiegand Detection mode description:

Auto Wiegand input mode allows the unit to detect Wiegand protocol streams based on how many bits are detected. In this mode the unit reports the data bit stream read after examining the checkbits. It is assumed that the first and last bit is a parity bit. The length of the output stream will vary depending on the number of bits received

The format for this is:

nn..<crn> where nn is the hexadecimal value representing the number of bits received. Less the parity bits
<crn> is a carriage return character $0D

eg,
3C0C64<crn> "this is a 26 bit stream"
AA005322<crn> "this is a 34 bit stream"
64CE0010B2<crn> "this is a 42 bit stream"

Generic Wiegand input mode description:

Generic Wiegand input mode allows the unit to detect Wiegand protocol streams that may not be standard 26 bit or 37 bit protocols. In this mode the unit reports the data bit stream read without checking and removing check bits. The first two characters of the output string are hexadecimal numbers that indicate the number of bits detected. Data is sent on 8 bit boundaries with zeros padded on the left for unused bits. The data shown also includes any check bits that may be included in the wiegand input string. A maximum of 48 bits of wiegand data can be detected in this mode.

The format for this is:

SSnnnnnn<crn> where SS is the hexadecimal value representing the number of bits received.
nnnnnn are the hexadecimal data output and will vary in size depending on the number of bits detected. 2 characters are needed to represent 8 binary bits.
<crn> is a carriage return character $0D

eg,
1A033C0C64 "this is a 26 bit stream"
1A033C0BE1
2A0064CE0010B2 "this is a 42 bit stream"
2A0064CE0010B4

Tecom 27 format description:

Tecom 27 protocol is defined as a stream of 27 bits. It is made up of 11 bits for Site Code, and 16 bits for Card Number. The various bits are interspersed through the input stream and are re-arranged into Site Code and Card Number segments on Output.

Bit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Type	C	C	S	S	C	C	S	C	C	C	S	C	C	C	S	S	C	C	S	S	C	C	S	S	S	C	C
Bit No.	1	2	11	10	15	16	7	12	13	5	8	14	4	3	9	1	8	9	6	2	7	10	5	4	3	11	6

Note: C : Card Number (16 bits) S: Site code (11 bits)

SC = 16,20,25,24,23,19,7,11,15,4, 3
CN = 1, 2, 14,13,10,27,21,17,18,22,26,8, 9,12,5, 6

Eg.
The Input data stream 004217E8 in hex

Resolves to Site code = 010 1010 0100 2A4 (hex) = 676 decimal

And Card Number = 0000 1011 1100 0010 BC2 (hex) 3010 decimal

The Output format for this is:

SSSCCCC<crn> where SSS is the hexadecimal value representing the Site Code (3 hex characters).
CCCC is the hexadecimal value representing the Card Number (4 hex characters).
<crn> is a carriage return character $0D

Eg.
2A40BC2<crn> Site Code 2A4, Card Number 0BC2

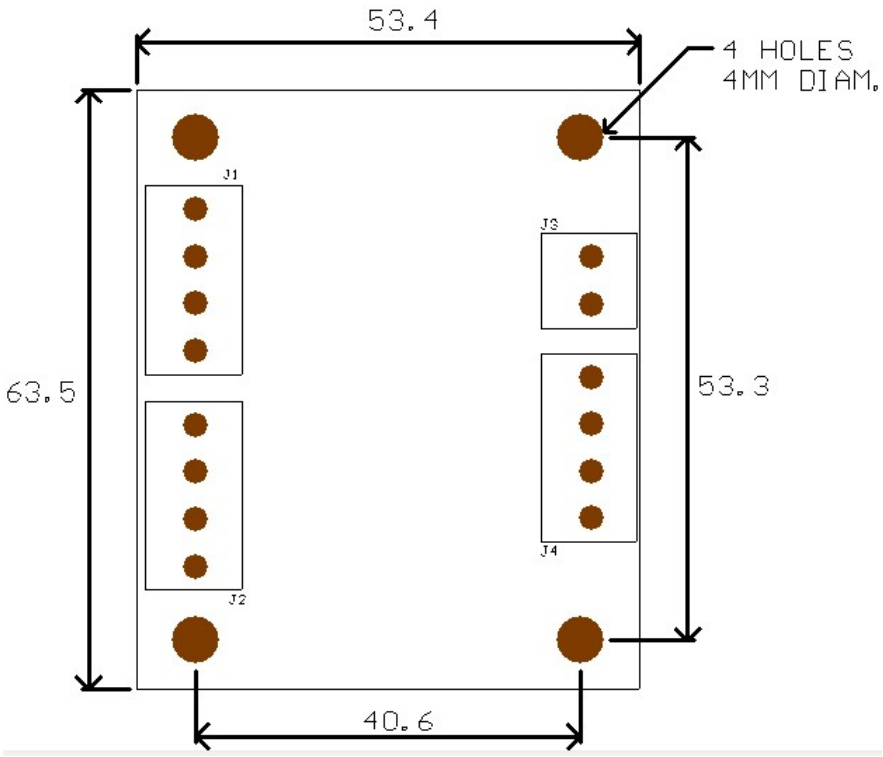
Protocol Selection.

The Protocol is selected via the option link pad LK1. Table 1 describes the available settings.

SW1	SW2	SW3	SW4	Protocol
Off	Off	Off	Off	Wiegand 26
On	Off	Off	Off	Wiegand 37
Off	On	Off	Off	-
On	On	Off	Off	Wiegand 34
Off	Off	On	Off	Auto mode
On	Off	On	Off	-
Off	On	On	Off	-
On	On	On	Off	-
Off	Off	Off	On	Generic mode
On	Off	Off	On	-
Off	On	Off	On	-
On	On	Off	On	-
Off	Off	On	On	Tecom 27
On	Off	On	On	-
Off	On	On	On	-
On	On	On	On	-

Table 1. LK1 protocol select. ON = link placed

Dimensions:



All dimensions in mm.

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