

OEM-1300 Universal Data Converter

User Manual



Thank You!

Congratulations on the purchase of your OEM-1300 device(s). RF IDEas hopes you enjoy using the readers as much as we enjoyed creating and developing them. Configuration is easy, so you will be able to quickly take advantage of a more secure environment in your business, school, or organization.

Please call our Sales department if you have any questions or are interested in our OEM and Independent Developer's programs.

We look forward to your comments and suggestions for our product line! Please go to www.RFIDEas.com and follow the **Support** ⇨ **Learning Center** link for more details about our product line.

We are always discovering new applications for our product line(s). There are several software developer's licensing our technology so the solution you are looking for may already be developed.

Thank you,
The RF IDEas Staff

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OEM-1300 - The Basics

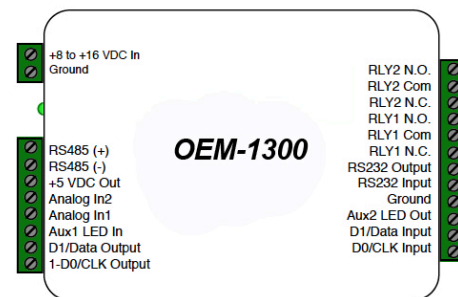
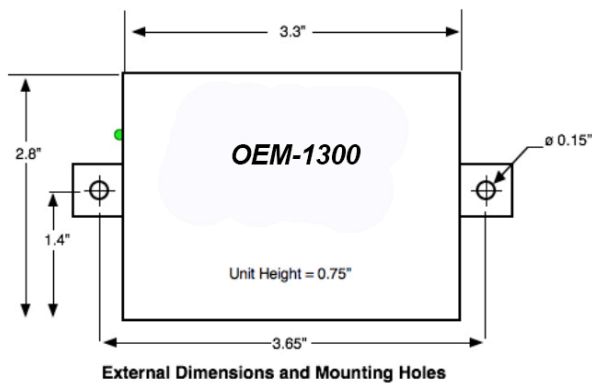
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Product Description

The RF IDEas OEM-1300 is based on the OEM-1200 series converter. For most legacy converter functions, the DIP switch settings will be set the same as with the OEM-1200.

This document provides detailed wiring information and a reference to DIP switch settings for the converter. Detailed conversion descriptions are provided in chapters organized for each type of conversion function.

External Connections



Note: F2F connections support unsupervised mode

Note: Terminals shown for reference. Connections may or may not be utilized based on converter function.

A Diagnostic LED is provided to provide operational status of the converter:

- Diagnostic LED OFF - No power
- Diagnostic LED Blinking Green - Unit is operating
- Diagnostic LED Red - Undefined DIP Switch Setting

Mechanical Specifications

Physical	Aluminum Enclosure	Size: 3.5" x 2.75" x .75"
Temp	Storage: -55°C to +150°C	Operating: -40°C to +85°C
Humidity	95% non-condensing	
Power	Input: Unreg Input 8 to 16VDC @ 200ma Max Output: +5vDC @ 100 ma	
Data I/O	Interface: Reader - Wiegand, Strobed (Clock & Data), F/2F LED - 0 to 30v	

Initial Setup

The OEM-1300 will support many different input and output formats.

The OEM-1300 replaces the OEM-1200.

A DIP switch determines which conversion process will be used.

A “Legacy” cross reference chart is provided to quickly determine which settings to use for standard converter numbers. In most cases several baud rate options are available to expand the capabilities of existing converters. The Legacy cross reference chart will list the converter CVT number and the OEM numbers as well as the DIP switch setting that will apply. Use the converter numbers to find the DIP switch settings on the OEM-1300 application charts.

Setting Up The Converter

Setting up the OEM-1300 converter:

1. First determine which converter (conversion process) is required for the application. This may be one of the standard converters or one of the new converters that are now part of the OEM-1300 library. All of the different conversion processes are described in detail in this manual. Each process will have a wiring diagram and specification sheet to describe the wiring connections and operation.
2. Set the DIP switch to the setting called out in the OEM application chart.
3. Refer to the wiring diagram for the particular converter that is being used. The wiring diagrams are different depending upon the type of conversion being performed.
4. Connect power to the OEM-1300 board.
5. If the diagnostic indicator LED flashes Green slowly, a valid converter number has been selected. If the diagnostic indicator is illuminated a solid Red color, an invalid DIP switch setting has been made.
6. Connect peripheral devices (Readers, Panel, Switches etc) according to the appropriate wiring diagram.

Legacy Converter

Legacy Converter Example: A converter that operates at 2400 Baud is needed.

The Legacy Compatibility chart calls out numbers 1, 2, and 3.

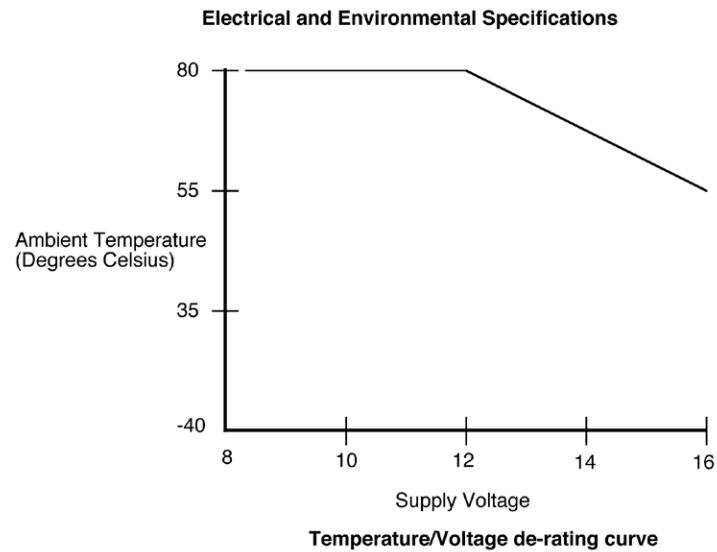
Looking at the application charts for #1, #2, and #3 lists 3 baud rates.

Selecting the 2400 Baud rate for OEM converter #2 would yield a DIP switch setting of:

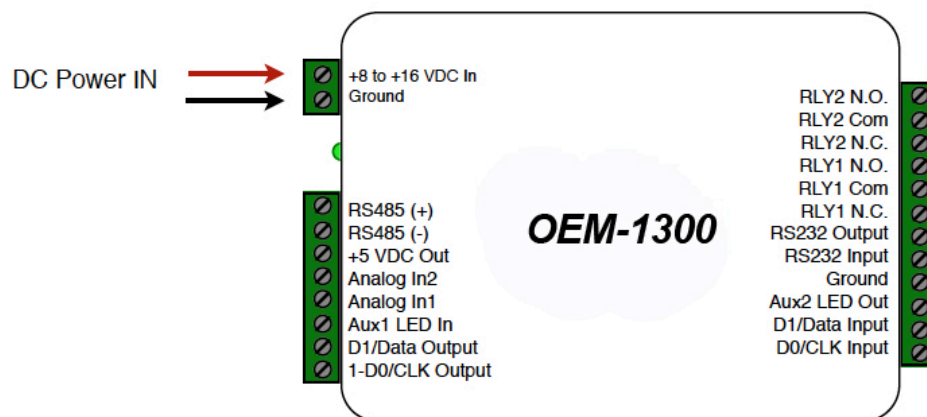
- 1 OFF
- 2 ON
- 3 OFF
- 4 OFF
- 5 OFF
- 6 OFF
- 7 OFF
- 8 OFF

The wiring diagram would reference the Wiegand to Serial connections.

Note: The OEM-1300 does not use an onboard DB type connector for RS-232 serial signals. Serial connections can be made directly to the 12 position connector. An optional patch cord is available with a Female DB-9 connector and flying leads. The wiring diagrams indicate the equivalent DB-9 connections to the OEM-1300 J3 connector.



The OEM-1300 units should be operated with a filtered 12 Volt nominal DC supply. Any voltage between 8 and 16 volts can be utilized by following the temperature/voltage de-rating curve. Voltage should not exceed 16 VDC under normal operating conditions.



OEM-1300 Serial data and RS-485

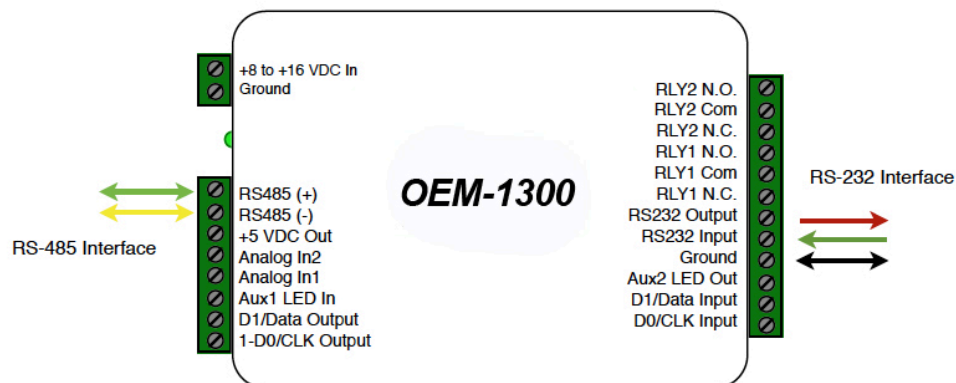
The OEM-1300 can support both RS-232 and RS-485 signals for transmitting and receiving serial data. For most converters utilizing serial data, both interfaces are always active and may be used by making the appropriate connections to the converter. Either the RS-232 or RS-485 interface may be used, but a loss of data will occur if both interfaces have active data at the same time.

Examples:

The legacy converter, CVT-2232, function will provide a serial input and convert to a Wiegand output. Serial data can be read from either the RS-232 or RS-485 interface. The baud rate will be determined by the DIP switch setting.

The legacy converter, CVT-9110, function will provide a Wiegand input and a serial output. Serial data will be output on the RS-232 and RS-485 interface.

Note: Some of the OEM-1300 converters may not support both RS-232 and RS-485 interfaces. Converters that do not support both interfaces will be noted in the specific converter specification.



OEM-1300 Legacy Compatible Formats

Converter	Input	Output	Settings(#)
CVT2232	Wiegand 24 to 40	Serial 13 Digits with <CR>	1 , 2 , 3
CVT-2111	Wiegand 1 to 40	Serial Dec/Hex Digits	7, 8, 9
CVT-2110	Wiegand 1 to 48	SerialHex Digits	10 , 11, 12
CVT-2144	Wiegand 44	Serial12 Digits	13 , 14 , 15
CVT-2145	Wiegand 44/32	Serial 12/10 Digits	16 , 17 , 18
CVT-2152	Wiegand 1 to 96	Serial 24 Hex Dec	19 , 20 , 21
CVT-2151	Wiegand 1 to 40	Serial HID Hex	22 , 23 , 24
CVT-2201	Strobed/ABA	Serial 24 Hex	25 , 26 , 27
CVT-2403	F/2F Raw	Serial ASCII Hex	28
CVT-2404	F/2F ABA	Serial ASCII Hex	29
CVT-2405	F/2F ABA	Wiegand 37 bit Custom	30
CVT-2406	F/2F ABA	Wiegand 37 bit Custom	33
CVT-9102	Serial 10 Dec	Wiegand 26	65 , 66 , 67
CVT-9110	Serial 12 Hex	Wiegand Variable	68 , 68 , 70
CVT-9109	Serial Transcore	Wiegand 26	71
CVT-9129	Serial Transcore	Xico 6	72
CVT-9132	Serial Transcore	Wiegand 37	73
CVT-9137	Serial Transcore	Wiegand 26	74
CVT-9117	Serial Transcore	Wiegand 26	75
CVT-9161	Serial Transcore	Wiegand 26	76
CVT-9162	Serial Transcore	Wiegand 37	77
CVT-9164	Serial Transcore	Wiegand 37	78
CVT-9201	Serial ASCII	Strobed / ABA	79,80,81,82
CVT-5932	Dallas iButton 1Wire	Wiegand 26	34
CVT-9165	Serial Transcore 26 bit	Wiegand 26	84
CVT-0026	Wiegand 24-40 bit	Wiegand 26	97
CVT-0026A	24-40 bit, spec 34 bit pr.	Wiegand 26	98
CVT-3526	Wiegand 35 bit C1000	Wiegand 26	99
CVT-5100	12 digit Strobed ABA	Wiegand 26	100
CVT-5100A	Last 8 digit Strobed ABA	Wiegand 26	101
CVT-5200	Wiegand 26 and 35 bit	12 Digit Strobed/ABA	102

OEM-1300 Legacy Compatible Formats

[illegible]

DIP Switch Application Table

#	DIP SWITCH SETTING								INPUT		OUTPUT	
	1	2	3	4	5	6	7	8	Interface	Format	Interface	Format
0									Test Mode			
1	X								Wiegand	24 to 40 bits	RS-232 (9600)	13 Digits,CR
2		X							Wiegand	24 to 40 bits	RS-232 (2400)	13 Digits,CR
3	X	X							Wiegand	24 to 40 bits	RS-232 (1200)	13 Digits,CR
4			X						Wiegand	24 to 48 bits	RS-232 (9600)	10 Digits,CR
5	X		X						Wiegand	24 to 48 bits	RS-232 (2400)	10 Digits,CR
6		X	X						Wiegand	24 to 48 bits	RS-232 (1200)	10 Digits,CR
7	X	X	X						Wiegand	24 to 48 bits	RS-232 (9600)	Dec/Hex Digits
8				X					Wiegand	24 to 48 bits	RS-232 (2400)	Dec/Hex Digits
9	X			X					Wiegand	24 to 48 bits	RS-232 (1200)	Dec/Hex Digits
10		X		X					Wiegand	1 to 48 bits	RS-232 (9600)	Hex Digits
11	X	X		X					Wiegand	1 to 48 bits	RS-232 (2400)	Hex Digits
12			X	X					Wiegand	1 to 48 bits	RS-232 (1200)	Hex Digits
13	X		X	X					Wiegand	44 bits	RS-232 (9600)	12 Digits
14		X	X	X					Wiegand	44 bits	RS-232 (2400)	12 Digits
15	X	X	X	X					Wiegand	44 bits	RS-232 (1200)	12 Digits
16					X				Wiegand	44/32 bits	RS-232 (9600)	12/10 Digits
17	X				X				Wiegand	44/32 bits	RS-232 (2400)	12/10 Digits
18		X			X				Wiegand	44/32 bits	RS-232 (1200)	12/10 Digits
19	X	X			X				Wiegand	1 to 96 bits	RS-232 (9600)	24 Hex/Dec
20			X		X				Wiegand	1 to 96 bits	RS-232 (2400)	24 Hex/Dec
21	X		X		X				Wiegand	1 to 96 bits	RS-232 (1200)	24 Hex/Dec
22		X	X		X				Wiegand	1 to 40 bits	RS-232 (9600)	HID Hex
23	X	X	X		X				Wiegand	1 to 40 bits	RS-232 (2400)	HID Hex
24				X	X				Wiegand	1 to 40 bits	RS-232 (1200)	HID Hex
25	X			X	X				Strobed	ABA	RS-232 (9600)	24 Hex
26		X		X	X				Strobed	ABA	RS-232 (2400)	24 Hex
27	X	X		X	X				Strobed	ABA	RS-232 (1200)	24 Hex
28			X	X	X				F/2F	Raw-All bits	RS-232 (1200)	RS-232 (9600)
29	X		X	X	X				F/2F	ABA	RS-232 (9600)	ASCII Hex
30		X	X	X	X				F/2F	ABA	Wiegand	37 Bit Custom
31	X	X	X	X	X				TEST	MODE	RS-232 (9600)	Test String
Continued												

DIP Switch Application Table

#	DIP SWITCH SETTING								INPUT		OUTPUT	
	1	2	3	4	5	6	7	8	Interface	Format	Interface	Format
32						X			Wiegand Output TEST MODE- 26 Bit FC =123 Badge = 4567			
33	X					X			F/2F	ABA	Wiegand	37 Bit Custom
34		X				X			Dallas iButton	64 Bit Binary	Wiegand	26 Bit
35	X	X				X			Wiegand	ABA	RS-232 (9600)	ASCII
36			X			X			Wiegand	ABA	RS-232 (2400)	ASCII
37	X		X			X			Strobed Fall	ABA	RS-232 (9600)	24 Hex ASCII
38		X	X			X			Wiegand	24 to 40 bits	RS-232 (9600)	5 Digits, CR
39	X	X	X			X			Radionics	Readykey	Wiegand	40 Bit
40				X		X			Radionics	Readykey	Wiegand	34 Bit
41	X			X		X			Radionics	Readykey	Wiegand	26 Bit
42		X		X		X						
43	X	X		X		X						
44			X	X		X						
45	X		X	X		X						
46		X	X	X		X						
47	X	X	X	X		X						
48					X	X						
49	X				X	X						
50		X			X	X						
51	X	X			X	X						
52			X		X	X						
53	X		X		X	X						
54		X	X		X	X						
55	X	X	X		X	X						
56				X	X	X						
57	X			X	X	X						
58		X		X	X	X						
59	X	X		X	X	X						
60			X	X	X	X						
61	X		X	X	X	X						
62		X	X	X	X	X						
63	X	X	X	X	X	X			TEST	MODE	FC = 246	BADGE = ++
Continued												

DIP Switch Application Table

#	DIP SWITCH SETTING								INPUT		OUTPUT	
	1	2	3	4	5	6	7	8	Interface	Format	Interface	Format
64							X		Strobed ABA Output TEST MODE Number = 123456789			
65	X						X		RS-232 (9600)	10 Dec	Wiegand	26 bit
66		X					X		RS-232 (2400)	10 Dec	Wiegand	26 bit
67	X	X					X		RS-232 (1200)	10 Dec	Wiegand	26 bit
68			X				X		RS-232 (9600)	12 Hex	Wiegand	Variable
69	X		X				X		RS-232 (2400)	12 Hex	Wiegand	Variable
70		X	X				X		RS-232 (1200)	12 Hex	Wiegand	Variable
71	X	X	X				X		RS-232 (9600)	TransCore	Wiegand	26 bit
72				X			X		RS-232 (9600)	TransCore	Wiegand	Xico 6
73	X			X			X		RS-232 (9600)	TransCore	Wiegand	37
74		X		X			X		RS-232 (9600)	TransCore	Wiegand	26
75	X	X		X			X		RS-232 (9600)	TransCore	Wiegand	26 (9117)
76			X	X			X		RS-232 (9600)	TransCore	Wiegand	26 (9161)
77	X		X	X			X		RS-232 (9600)	TransCore	Wiegand	37
78		X	X	X			X		RS-232 (9600)	TransCore	Wiegand	37
79	X	X	X	X			X		RS-232 (9600)	ASCII	Strobed	ABA
80					X		X		RS-232 (2400)	ASCII	Strobed	ABA
81	X				X		X		RS-232 (1200)	ASCII	Strobed	ABA
82		X			X		X		RS-232 (9600)	ASCII	Strobed NoPU	ABA
83	X	X			X		X		RS-232 (9600)	ASCII Decimal	F/2F	12 digit ABA
84			X		X		X		RS-232 (9600)	TransCore 26b	Wiegand	26 bit
85	X		X		X		X		RS-232 (9600)	Transcore	Wiegand	26 bit
86		X	X		X		X		RS-232 (9600)	ASCII Decimal	Wiegand	36 bit
87	X	X	X		X		X		RS-232 (9600)	ASCII Decimal	Wiegand	37 bit
88				X	X		X					
89	X			X	X		X					
90		X		X	X		X					
91	X	X		X	X		X		RS-232 (9600)	Mag-Tek Track 1	Wiegand	26 bit
92			X	X	X		X					
93	X		X	X	X		X					
94		X	X	X	X		X					
95	X	X	X	X	X		X					
Continued												

DIP Switch Application Table

#	DIP SWITCH SETTING								INPUT		OUTPUT	
	1	2	3	4	5	6	7	8	Interface	Format	Interface	Format
96						X	X		Reserved			
97	X					X	X		Wiegand	24-40 bit	Wiegand	26 bit
98		X				X	X		Wiegand	24-40 bit	Wiegand	26 bit
99	X	X				X	X		Wiegand	35 bit	Wiegand	26 bit
100			X			X	X		Strobed	ABA/ 12 digits	Wiegand	26 bit
101	X		X			X	X		Strobed	ABA/Last 8 dig.	Wiegand	26 bit
102		X	X			X	X		Wiegand	26 bit	Strobed/ABA	12 digits
103	X	X	X			X	X					
104				X		X	X					
105	X			X		X	X					
106		X		X		X	X					
107	X	X		X		X	X					
108			X	X		X	X					
109	X		X	X		X	X					
110		X	X	X		X	X					
111	X	X	X	X		X	X					
112					X	X	X					
113	X				X	X	X					
114		X			X	X	X					
115	X	X			X	X	X					
116			X		X	X	X					
117	X		X		X	X	X					
118		X	X		X	X	X					
119	X	X	X		X	X	X					
120				X	X	X	X					
121	X			X	X	X	X					
122		X		X	X	X	X					
123	X	X		X	X	X	X					
124			X	X	X	X	X					
125	X		X	X	X	X	X					
126		X	X	X	X	X	X					
127	X	X	X	X	X	X	X					

Standard Wiring Diagrams - OEM-1300

Wiring diagrams are referenced by function and number. The specific converter descriptions will refer to these diagrams.

OEM-1300 Electrical Connections

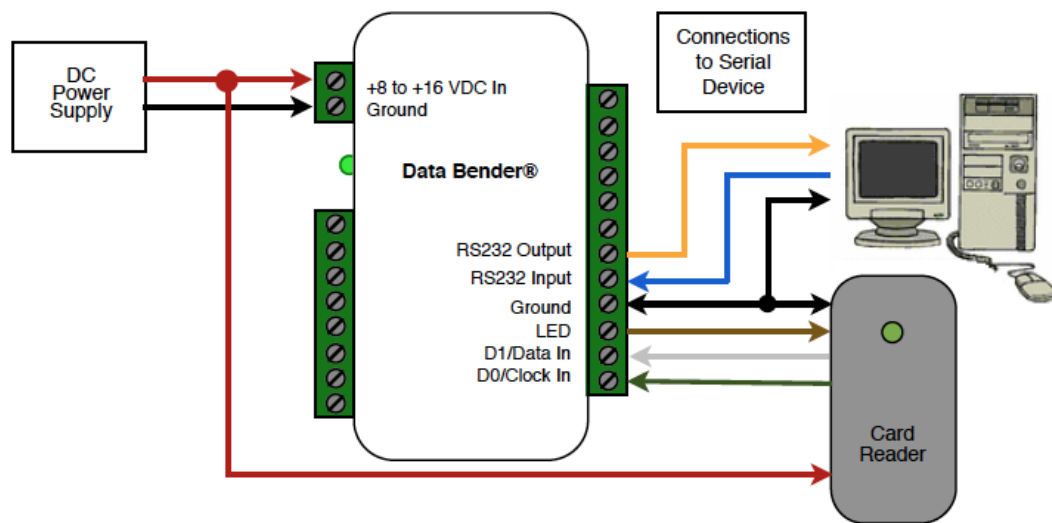
1. Serial data and RS-485
2. Standard power supply connections

Listing of Standard Wiring Diagrams

1. Wiegand to Serial
2. Serial to Wiegand
3. Wiegand to Wiegand
4. Strobed to Serial
5. Serial to Strobed
6. Strobed to Wiegand
7. Wiegand to Strobed
8. F2F to Wiegand
9. Serial to F2F
10. Serial to Wiegand - Special Application
11. Radionics 1 Wire to Wiegand

Wiring Diagram #1 Wiegand to Serial

Reader powered by external supply 8 to 16 VDC



DB-9 Connections
Direct to PC Com Port

CVX Terminal	DB9 Pin
Ground	5
RS232 Input	3
RS232 Output	2

The Wiegand to RS-232 converters support incoming commands to control the Reader LED and Converter Relay.

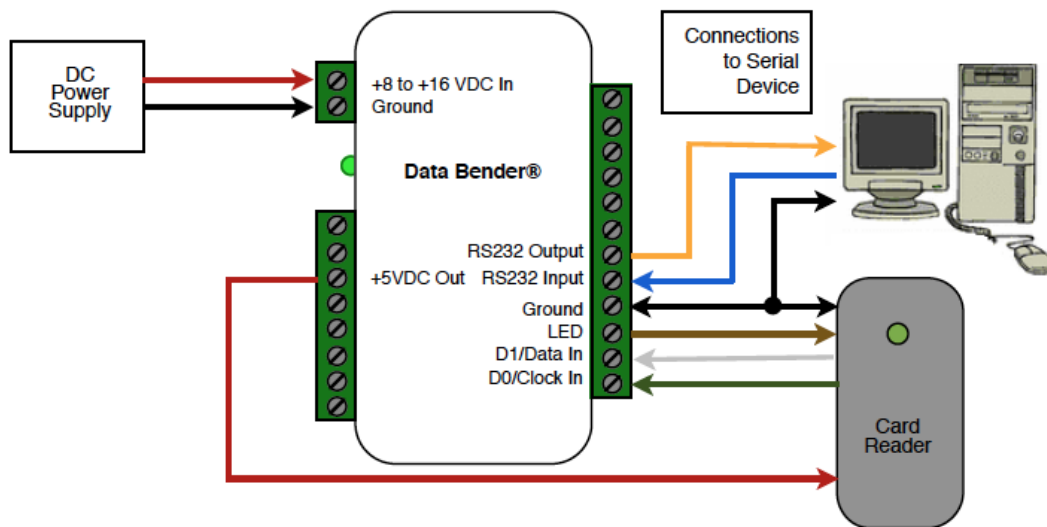
RX Data:

Turn LED on.....@ L 1
Turn LED off.....@ L 0
Toggle LED.....@ L 2 (Bi-Color LED Turns Orange)
Turn Relay on.....@ R 1
Turn Relay off.....@ R 0

Note: Commands must be capitalized characters

Wiring Diagram #1 Wiegand to Serial

Reader powered by converter +5 VDC



DB-9 Connections
Direct to PC Com Port

CVX Terminal	DB9 Pin
Ground	5
RS232 Input	3
RS232 Output	2

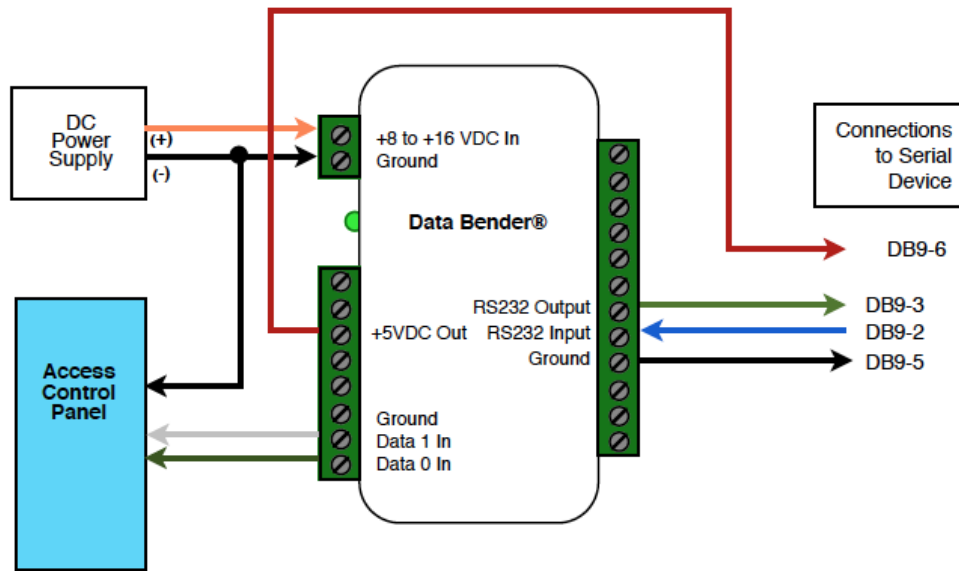
The Wiegand to RS-232 converters support incoming commands to control the Reader LED and Converter Relay.

RX Data:

Turn LED on.....@ L 1
Turn LED off.....@ L 0
Toggle LED.....@ L 2 (Bi-Color LED Turns Orange)
Turn Relay on.....@ R 1
Turn Relay off.....@ R 0

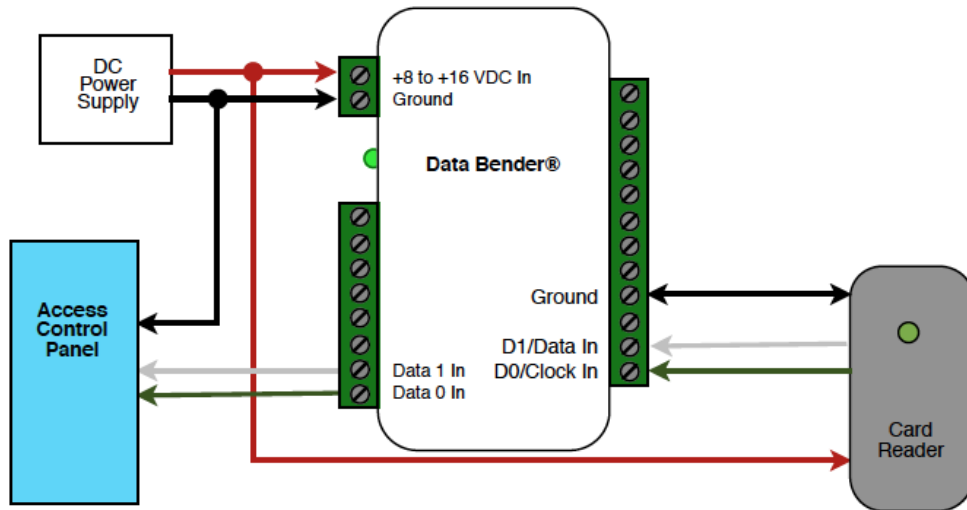
Note: Commands must be capitalized characters

Wiring Diagram #2 Serial to Wiegand

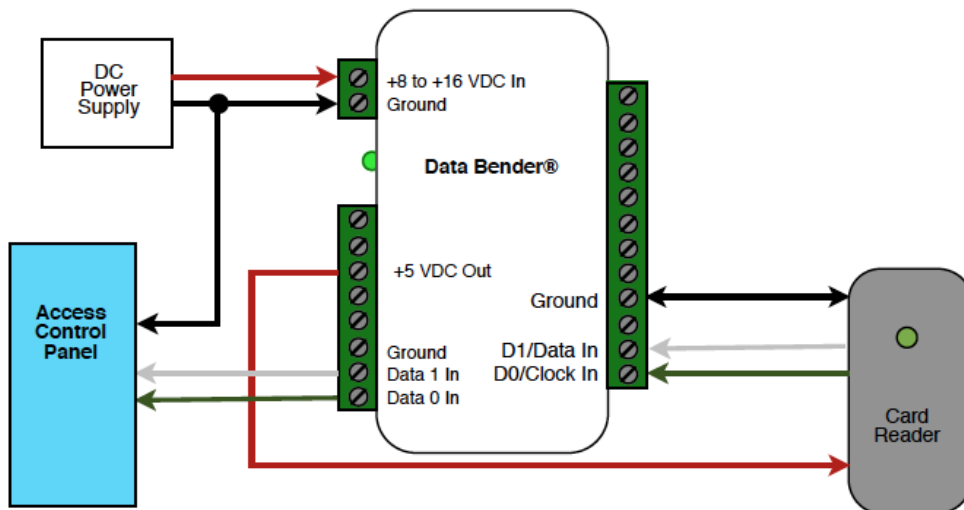


Wiring Diagram #3 Wiegand to Wiegand

Reader powered by external supply 8 to 16 VDC

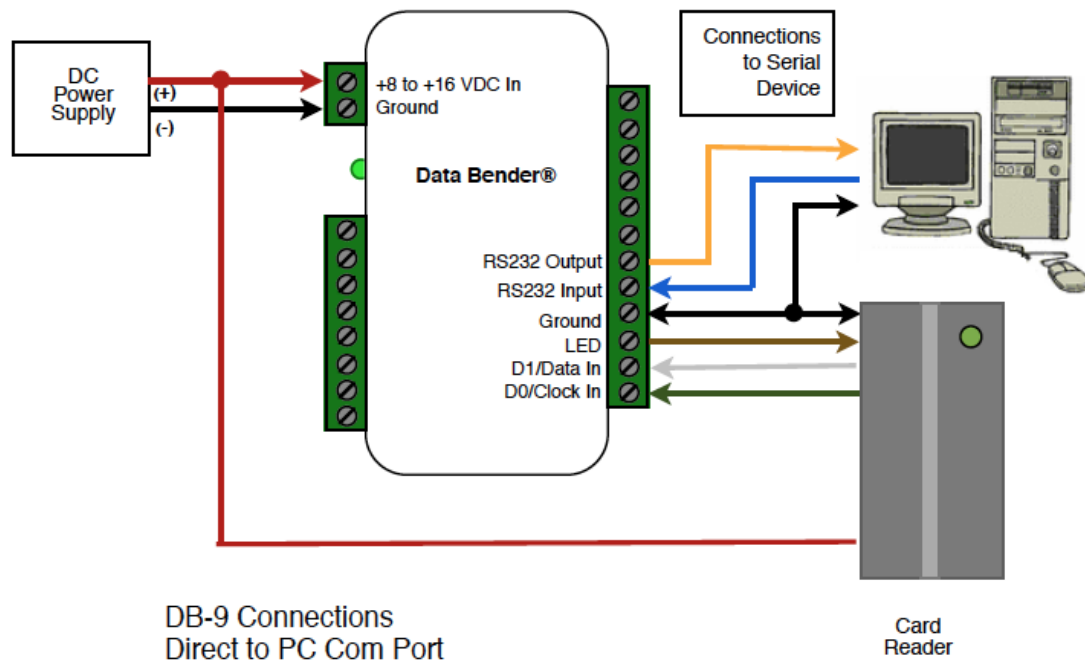


Reader powered by 5 Volt Supply



Wiring Diagram #4 Strobed to Serial

Reader powered by external supply 8 to 16 VDC



CVX Terminal	DB9 Pin
Ground	5
RS232 Input	3
RS232 Output	2

The Strobed to RS-232 converters support incoming commands to control the Reader LED and Converter Relay.

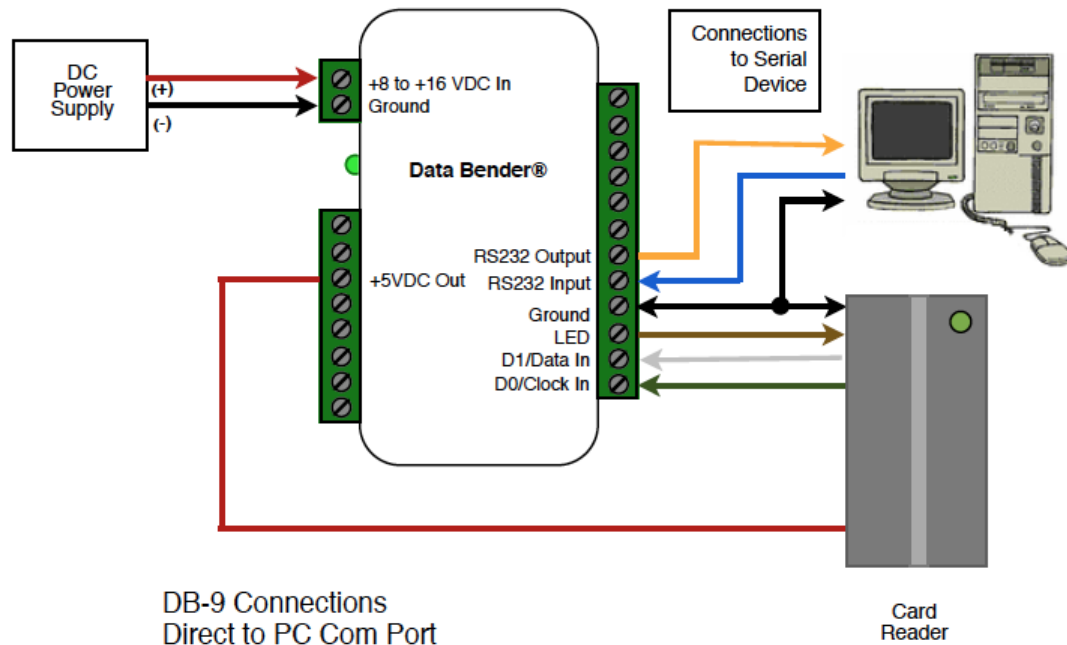
RX Data:

Turn LED on.....@ L 1
Turn LED off.....@ L 0
Toggle LED.....@ L 2 (Bi-Color LED Turns Orange)
Turn Relay on.....@ R 1
Turn Relay off.....@ R 0

Note: Commands must be capitalized characters

Wiring Diagram #4 Strobed to Serial

Reader powered by converter +5 VDC



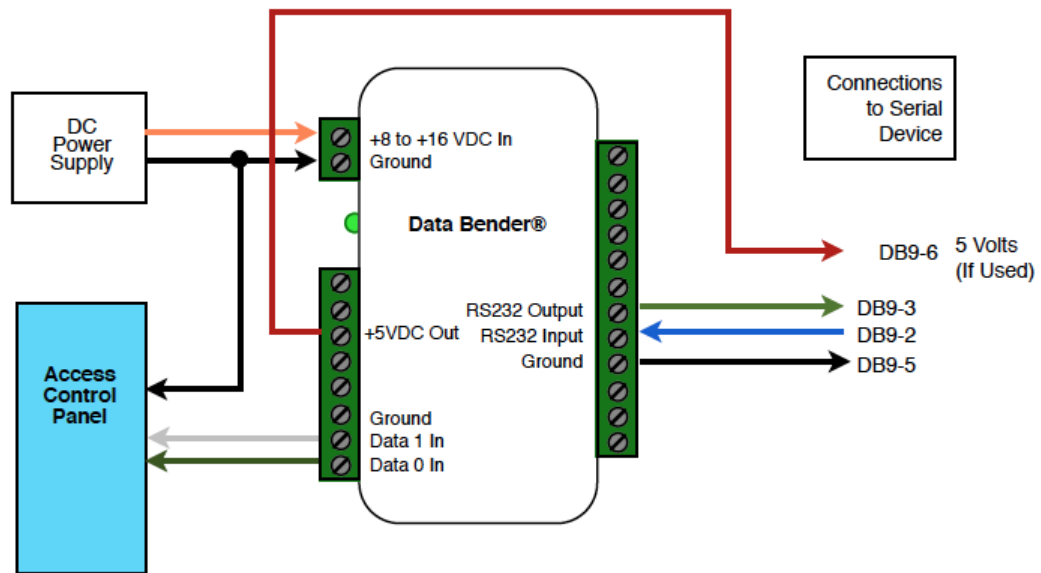
The Strobed to RS-232 converters support incoming commands to control the Reader LED and Converter Relay.

RX Data:

Turn LED on.....@ L 1
Turn LED off.....@ L 0
Toggle LED.....@ L 2 (Bi-Color LED Turns Orange)
Turn Relay on.....@ R 1
Turn Relay off.....@ R 0

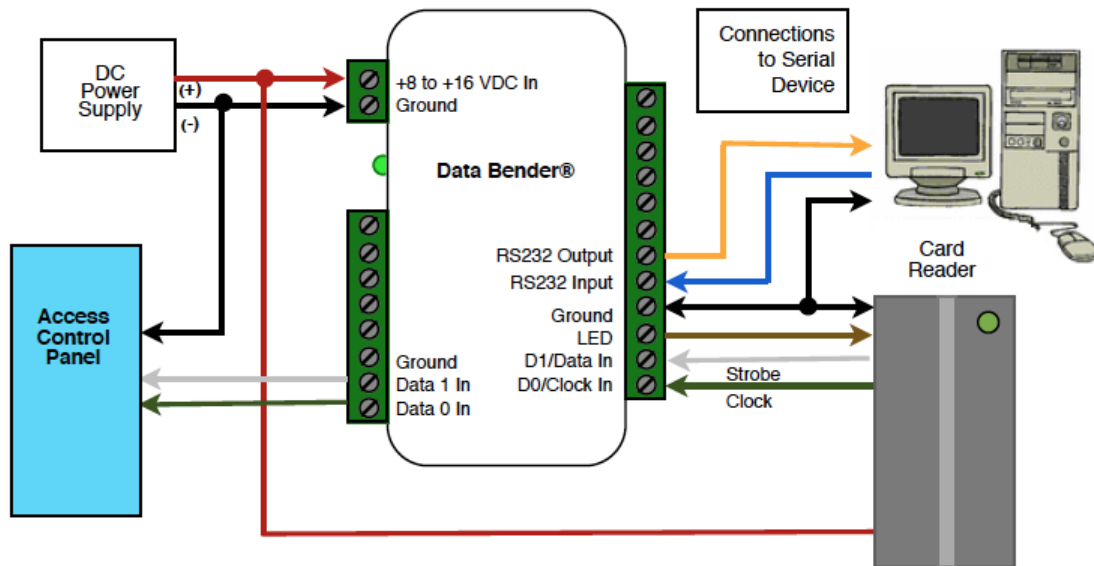
Note: Commands must be capitalized characters

Wiring Diagram #5 Serial to Strobed

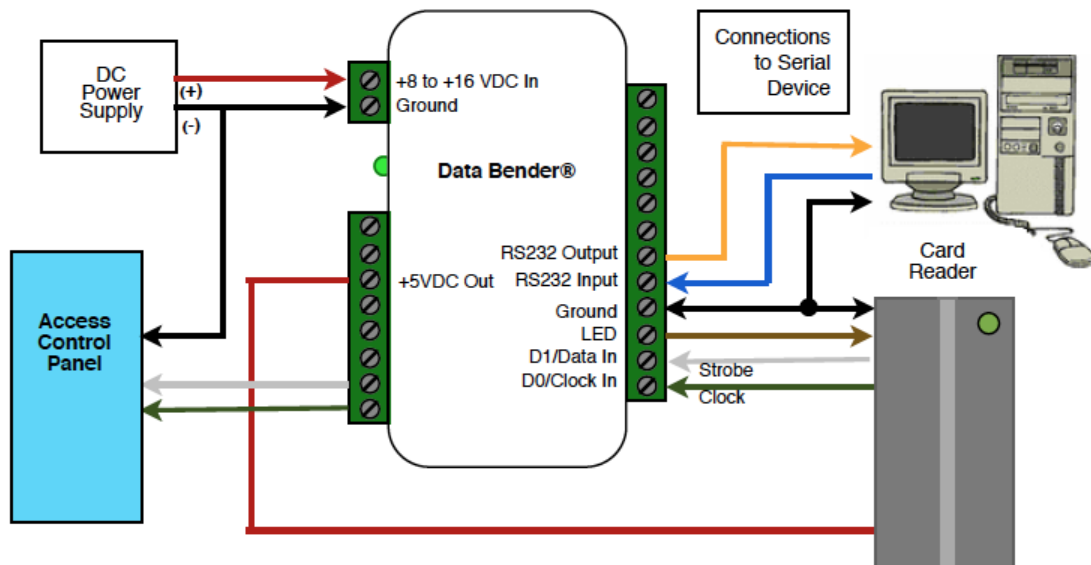


Wiring Diagram #6 Strobed to Wiegand

Reader powered by external supply (8 to 16 VDC)

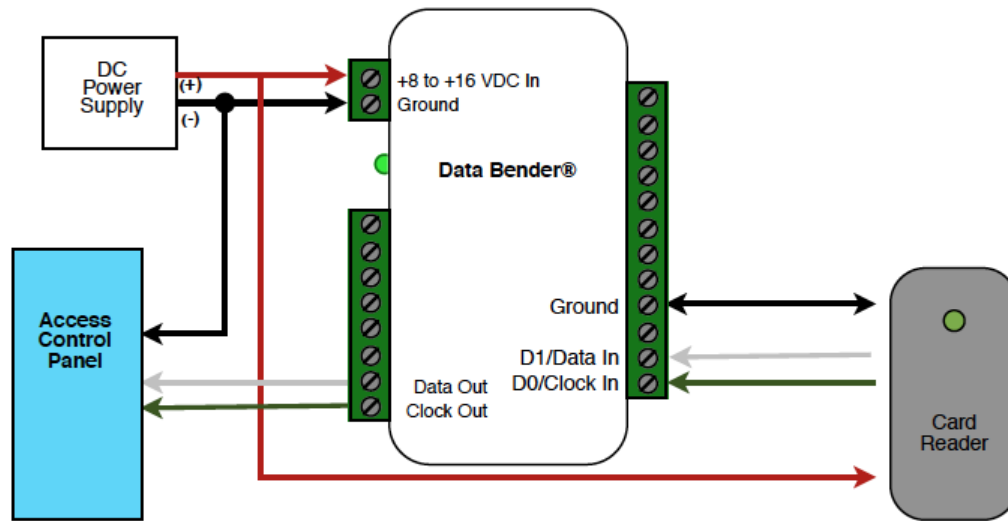


Reader powered by converter +5 VDC

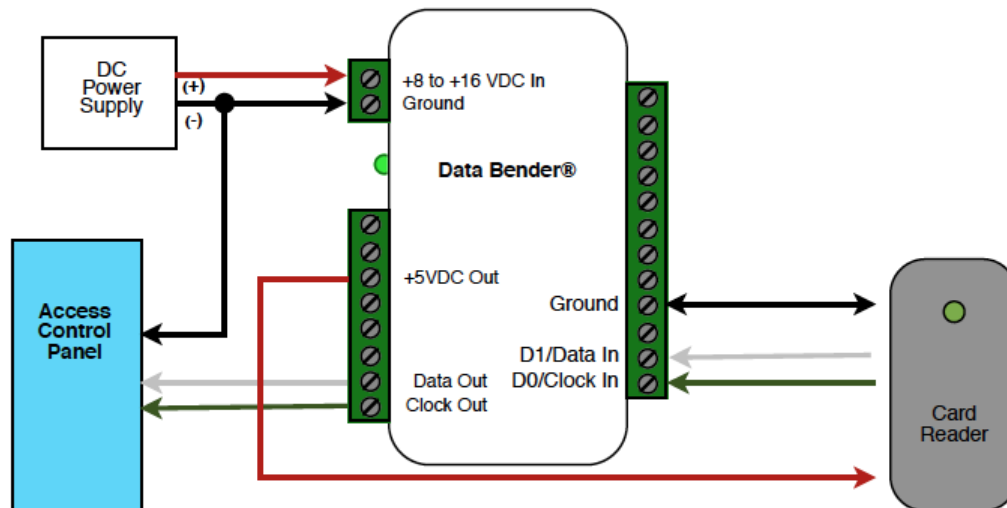


Wiring Diagram #7 Wiegand to Strobed

Reader powered by external supply 8 to 16 VDC

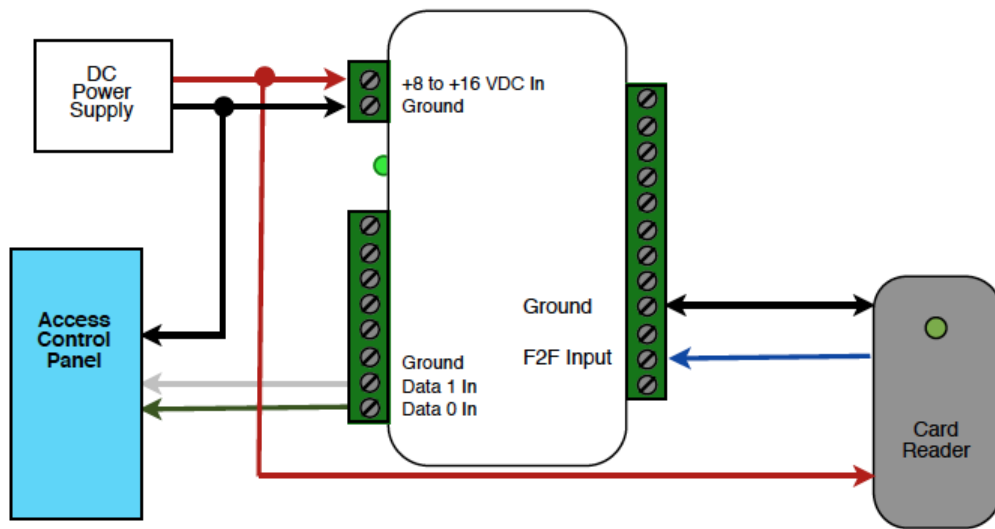


Reader powered by 5 Volt Supply

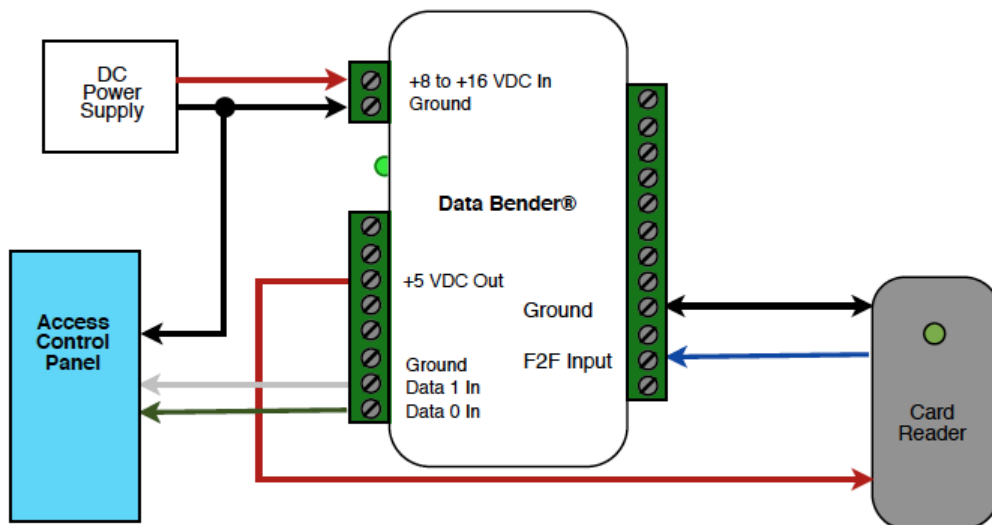


Wiring Diagram #8 F2F to Wiegand

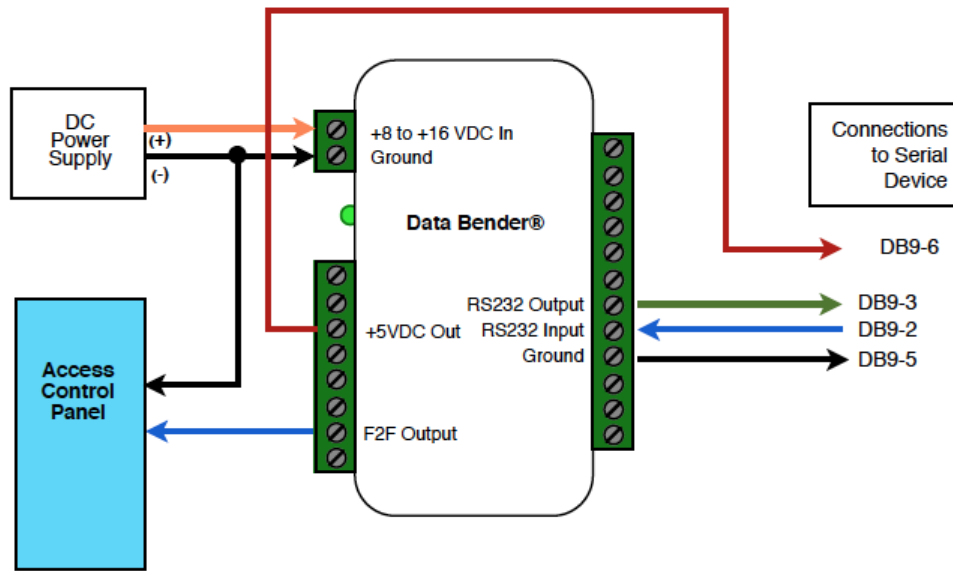
Reader powered by external supply 8 to 16 VDC



Reader powered by 5 Volt Supply

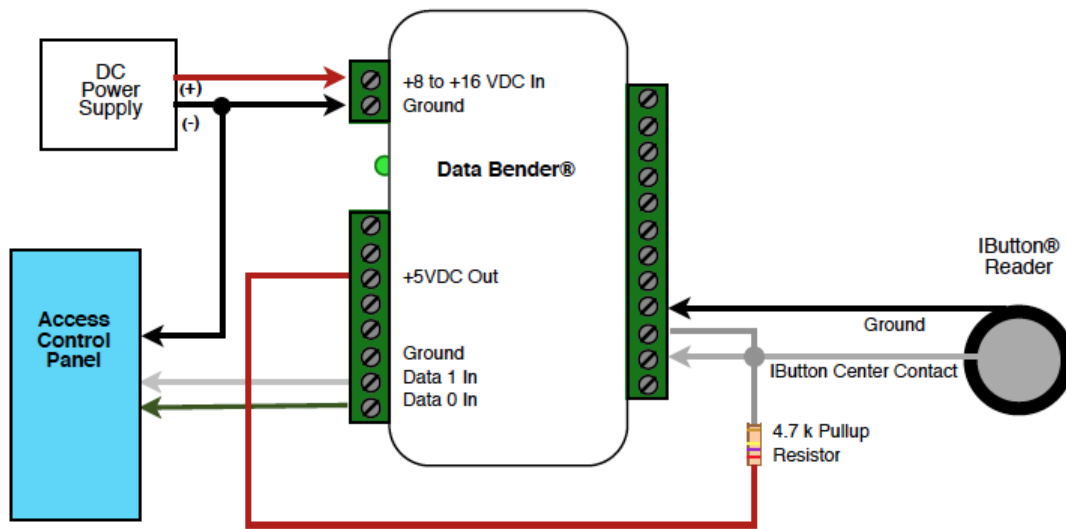


Wiring Diagram #9 Serial to F2F

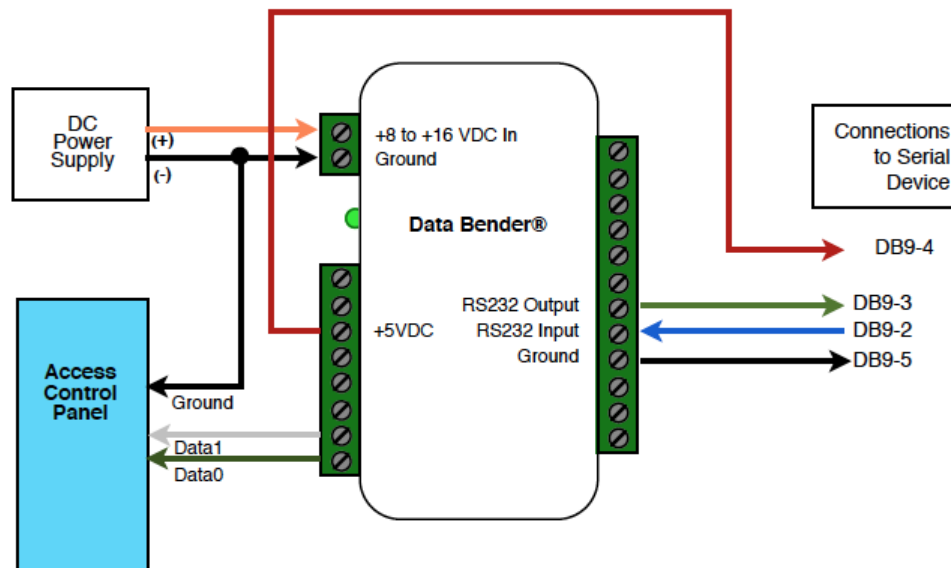


Wiring Diagram #10 IButton® to Wiegand

Reader powered by external supply 8 to 16 VDC

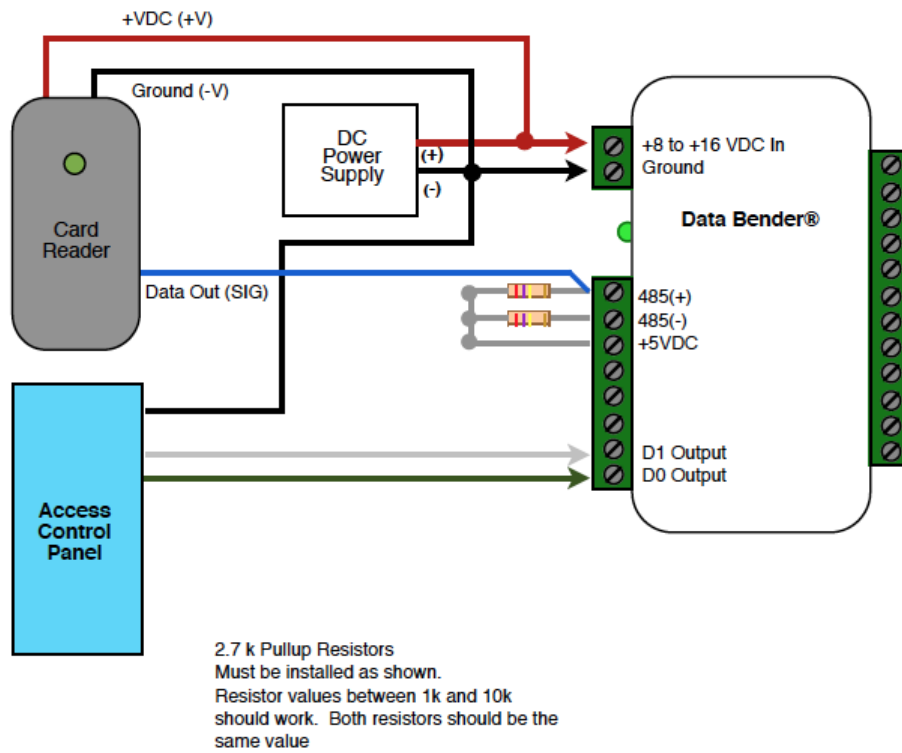


Wiring Diagram #11 Serial to Wiegand Special Application



Wiring Diagram #12 Radionics to Wiegand

Reader powered by external supply 8 to 16 VDC



Before You Call Technical Support

Please make sure you've identified your reader model and credential type being used. Have this information ready so that your call will be routed to the correct specialist.

For Assistance:

Ph: 847.870.1723

E: TechSupport@RFIDeas.com

Talking To The Technician

Provide the reader model being used to the Technical Support Specialist.

Explain your problem to the specialist.

Be prepared to provide the following information:

- Error/problem explanation
- What you were doing when the problem occurred
- What steps you have taken to resolve the problem, including results from each steps

Listen and follow the steps provided by the specialist. Let the specialist know what happens when you perform the steps.

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- (2) this device must accept any interference received, including interference that may cause undesired operation.

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B		
	Baud Rate	5, 6, 8
C		
	Conversion Process	5
D		
	DIP	4-6, 8, 11-14
F		
	F2F	25-26
L		
	LED	4, 5, 16-17, 20-21
O		
	Legacy Converter	4, 6, 8
R		
	OEM-1200	4, 5
R		
	RS-232	6, 8, 16-17, 20-21
R		
	RS-485	8

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Allows independent developer's to use their application to read proximity access badge Read ID data of more than 1 billion cards in the field



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