International Bar Code

810 SMART CARD READER

User's Guide

This document contains all of the information you need to connect and use an 810 smart card reader. If you have specific questions concerning the reader which are not found in this manual, please contact the dealer you purchased this product from.

If your dealer cannot supply you with the information you need, then feel free to contact IBC directly by phone, fax, or through e-mail.

Update information on all IBC products, as well as utility software and software for testing readers can be found on our internet pages at http://interbar.com.

Thank you for purchasing an IBC product. In order to serve you better, we welcome all comments you may have concerning our products and manuals. Please send your comments to IBC using e-mail to comments@interbar.com.

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FUNCTIONALITY

The 810 smart card reader reads memory-style smart cards and can output the data in wiegand/aba formats as well as standard serial.

This reader can be used as a direct plug and play replacement for barcode, magnetic stripe, wiegand, or prox readers which are connected to access control controllers.

Features of the 810 readers are:

- Bicolored led (controlled by the controller or by serial commands)
- Wiegand (26 bit) output (emulation models).
- ABA emulation output (emulation models).
- RS232 or RS422 connection capability (serial models).
- Optional onboard relay for door actuation control (serial models only).
- Mountable to a standard gang box, with integral face plate.

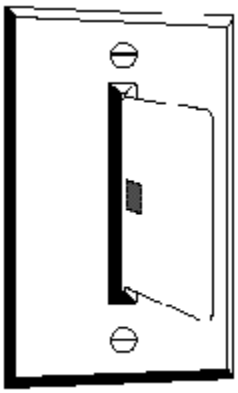
The **810** readers read standard memory-style smart cards and output the data in either wiegand/aba format or serially.

Emulation models output both wiegand and aba on seperate lines.

Cards read by the 810 must be programmed using the proper format (see Card Format section) iin order to be read by the reader.

After a successful read, the reader will output the data to the receiving system (computer or controller), and then the receiving system can trigger the led or relay located in the 810.

MOUNTING

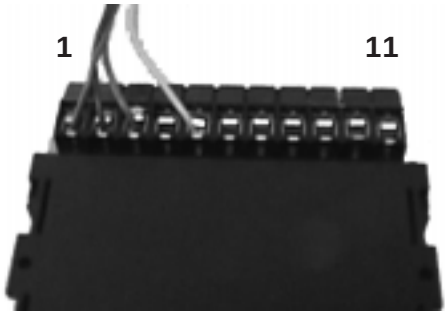


Mounting the reader is performed just like mounting a wall plate, with two screws that screw into a standard gang box.

The reader is normally mounted vertically as shown in the picture above however it can also be mounted horizontally.

WIRING

The reader contains an 11-position screw terminal connector for easy wiring, as shown in the picture below.



Depending on your installation, not all of the 11 terminals will be used. The following table lists the use for each of the terminals.

RS232 Connections

1	GND
2	VDC
3	TX
4	
5	RX
6	
7	
8	led control (if external control)
9	relay normally open
10	relay common
11	relay normally closed

RS422 Connections

1	GND
2	VDC
3	TX+
4	TX-
5	RX+
6	RX-
7	
8	led control (if external control)
9	relay normally open
10	relay common
11	relay normally closed

ABA/Wiegand Connections

1	GND	
2	VDC	
3	Data 0	(wiegand)
4	Data 1	(wiegand)
5	Media	(aba)
6	Clock	(aba)
7	Data	(aba)
8	led control	
9		
10		
11		

The wires are easily conected to the terminal by loosening the screw for the associated position, inserting the wire, and then tightening the screw.

LED

There is a bi-color led located at the front of the reader. This led is controlled externally (by a controller) in emulation mode readers, and internally controlled (or optionally externally controlled) in serial mode readers.

With the emulation mode reader, the led line is pulled to ground to make it red, and pulled up to 5VDC to make it green. Additionally, you can oscillate the line to make color variations of red and green. A 50% duty cycle, for example, will give you orange.

Normally, upon power start up, the led will be red.

Serial readers have commands to turn on and blink the leds.

POWER

Models are avialable which run off of 5VDC, 12VDC, or 24VDC. power usage (maximum) is about 50ma.

RELAY

Serial readers may be optionally ordered with an internal relay. This relay can be used to control the opening of doors or other devices.

The relay is a **form c** relay, meaning there is one common line, one normally open line, and one normally closed line.

When the relay is not engaged, the normally closed line will always have the same voltage potential as the common line, while the normally open line will not be connected. When the relay is engaged, the normally closed line will not be connected, and the normally open line will

have the same voltage potential as the common line.

Upon power on, the relay is normally disengaged.

The maximum ratings for the internal relay is 30VDC, 500ma.

COMMUNICATION

Serial communications is done using RS232 , with the line set at 9600 baud, 8 data bits, no parity, 1 stop bit.

This cannot be changed in the reader; however special configurations may be ordered.

It is not necessary to connect the serial receive to the reader if you will not be sending commands to the reader.

Wiegand/ABA emulation readers have 5 different output lines - 3 lines for the ABA emulation, and 2 lines for the wiegand emulation. This is done so that you can use the reader in either of the above two modes, without having to reprogram the reader. Simply move the wires and you're done.

Emulation output readers output **both** wiegand and ABA data after a card is read.

The output wires for emulation are line-driven (not open collector). Open collector units may be ordered on a special basis.

Transmission to and from the reader in serial mode must be terminated by a carriage return (hex 0D).

CARD READING

The reader has contacts for reading the smart card on only one side, so the smart card can be inserted only one way.

It is advisable to place a label or some other way of identifying which side the card should be inserted in, on the reader.

When a smart card of the proper format is inserted into the reader, the reader will transmit the smart card information automatically to the controller (aba/wiegand) or serial device.

Cards for use with the 810 consist of 8 characters maximum. The output data stream for wiegand is a standard 26 bit wiegand. The output in ABA is 8 numeric characters. The serial output is 8 characters followed by a carriage return.

CARD FORMAT

Cards which are read by the 810 reader have to be specially formatted (specific data must be at specific locations on the card) for reading.

This card format is defined in a different document; however it is important to note that only cards which are formatted in the proper manner will read in the reader. This is done for security purposes.

The style of card which is read by the reader is a standard i2c memory card, with 8-bit addressing. Cards are available from a number of manufacturers. Blank card stock is also available through IBC.

PROGRAMMING

The following are the commands for programming serial versions of the readers.

V returns the version identifier of the firmware
!xx triggers the relay for xx seconds
]xx turns on the green led for xx seconds, xx=00=leave on
}xx turns on the red led for xx seconds, xx=00=leave on
)xx blink led between red and green for xx seconds and leave red when finished
>xx blink led between red and green for xx seconds and leave green when finished