International Bar Code

814 STAND ALONE SMART CARD READER

User's Guide

IBC DOCUMENT PROG075

This document contains all of the information you need to connect and use an 814 smart card stand alone 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.

IBC
160 Oak Street
Glastonbury, Connecticut
06033 USA

Phone: 860 659 9660
Fax: 860 657 3860

Email: support: support@interbar.com
sales: sales@interbar.com
comments: comments@interbar.com

Internet: http://interbar.com

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FUNCTIONALITY

The 814 stand alone smart card reader is a stand alone access control solution using smart card technology. The reader contains memory for the storage of up to 300 ID cards, and is easily programmable by using smart cards.

When a smart card is inserted that contains a valid ID that is in the memory, the 814 internal relay turns on and allows access through the door.

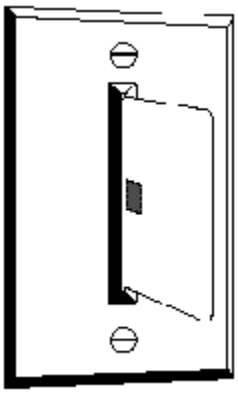
Smart cards used by the 814 are any 16-bit addressed I^2C memory-style smart cards. These are any of the smart cards that are 24Cxx based starting at 32k bits or larger (see the section on smart card specifications). These cards are readily available and can be purchased from any of the major smart card suppliers.

Features of the 814 reader are:

- Bicolor led for user signaling
- Onboard relay for door actuation or equipment control
- Mountable to a standard gang box, with integral face plate
- Contains memory for up to 300 ID cards
- Programmable door open time

Special versions of the 814 reader are also available with modified firmware. Contact IBC for further information if you require special firmware.

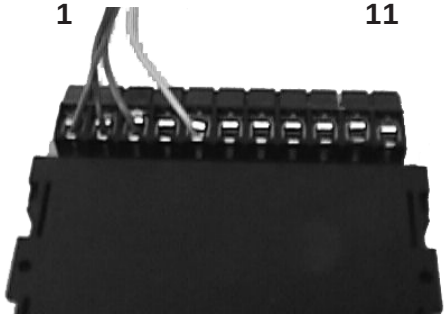
MOUNTING



The reader is designed to be easily mounted into a single gang box or into a piece of oem equipment. 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.



Wiring descriptions are as follows:

1 GND
2 VDC (+5, 12, or 24VDC)
3 unused
4 unused
5 unused
6 unused
7 unused
8 unused
9 relay normally open
10 relay common
11 relay normally closed

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

For installations which are using a 5VDC power supply, 18 guage wire is recommended if the run is more than 20'. For long runs above 20', we recommend using a 12VDC or 24VDC reader, and 18 or 20 guage wire for the power.

The internal relay is rated at 30VDC, 1/2 amp. Please do not attempt to put more power through the relay than what is rated.

LED

There is a bi-color led located at the front of the reader. The led is controlled by the reader and informs the user of the current status of the reader. The normal status of the led is as follows:

Startup:	Red
Ready:	Red
Control Card Accepted:	Quick green blink
Access Granted:	Green for programmed period

POWER

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

RELAY

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 disengaged.

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

CARD READING

The reader has contacts for reading the smart card on only one side, so the smart card must 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.

READER SECURITY

The reader is programmed with a special 5-character security code. Any programming cards which are inserted in the reader must contain not only special programming information, but must also contain the 5-character security code. If the proper security code is not found on the card, the reader will not accept the programming card.

The default security code in the reader is 00000. This may be changed at any time by the user at or after installation.

To add additional security to the reader, we recommend changing the default security code.

PROGRAMMING

The reader is programmed by using a smart card which has special programming information on it.

The Programming card is the same type of memory card used for employee id's. You do not need a special type of card for programming. The only difference is that there is special information encoded on the card which determines that it is a programming card.

The programming card contains the following information:

- Start location of ID field on user cards
- Length of ID field
- Relay **ON** time
- Current Security Code
- New Security Code (if changing)
- Employee ID's to load into memory

To program the reader with the above parameters, simply make a programming card as described under **card formats**, and insert it into the reader. The reader will then take the programming parameters from the card and load them into the reader's non volatile memory.

If you are also downloading ID numbers into the reader, those ID numbers will also be located on the programming card.

When you place the programming card into the reader, the reader will change the led from red to green for about 1/2 second. This is the indication that the programming card was accepted. If the green led does not go on, then the programming card was not acepted.

CARD FORMATS

There are two different card formats described here. One is for the Employee ID card, and the other for programming cards.

These cards can be programmed using an 812 reader/writer, or any smart card reader/ writer which can communicate with I2C memory cards.

Employee ID Card format:

Position	Value
0	33 (binary)
1	56 (binary)
2	71 (binary)
3	149 (binary)
iii.....	Employee ID Data

The 4 binary values shown above must be located in positions 0 through 3 for the Employee ID cards.

The iii... refers to the Employee ID, which is encoded in alphanumeric, starting at the position you have programmed the reader for. If you have not changed the default programming in the reader, the default position on the card is 5, and the default length is 5.

Programming Card format:

Position	Value
0	149 (binary)
1	38 (binary)
2	71 (binary)
3	149 (binary)
4	binary value of the length of the Employee ID (maximum of 10)
5	binary value of the starting position on ID cards for the Employee ID
6	binary value of the amount of time to turn the relay on for a good employee card match (minimum of 1 second, max of 15 seconds).
7 thru 11	current security code (alphanumeric). This is the value of the current security code in the reader. You must enter the valid security code here, for the reader to accept the programming card.
12 thru 16	new security code (alphanumeric). If you want to change the security code in the reader, put the new security code here.
17	this is a binary value which is set to a 1 if the control card also contains employee id data which is being downloaded into the reader.

18,19	These two positions contain the number of employee id's which are being loaded into the reader (position 17 must be a binary 1). This is a 2-byte value (16 bits) with the upper byte in position 18 and the lower byte value in position 19.
20,21	These two positions contain the number of bytes being downloaded (# of id's multipled by the id length). This is a 2-byte value (16 bits) with the upper byte in position 20, and the lower byte value in position 21.
22	Start of the employee id data to download into the reader.

Employee ID Data format:

The employee ID data is stored on the card in a special format. Each ID is stored in reverse order, so if you have two 5-character id's to download, and they are 00001 and 00002, then the data starting at position 22 should be 1000020000 (each 5 character ID is backwords).

SMART CARDS SUPPORTED

The 814 reader supports any 16-bit addressable I2C smart card. Normally, these cards are at least 32k bits in size. I2C smart cards which are smaller than 32K bits normally do not use 16 bit addressing so they will not work with the reader.

Any smart card that is 24C32, 24C64, 24C128 based will work with the reader. Some examples are Cardlogix CLXSA032KA9, Orga OMC8192, AMMI AM23C32. If you are not sure if your card will work, contact IBC for more information.

UTILITY SOFTWARE

IBC has utility software on IBC's internet page at http://interbar.com, for creating employee id cards and programming cards for use with the 814 reader. This software allows you to program ID cards, as well as programming cards, using an IBC 812 reader/writer.