DCProx
User's Guide
V2.1

SYMBOLS USED IN THIS MANUAL

(i)   Informational

⚠   Warning

LED Indicator

On/Off Switch

USB Connector

AC Adaptor Connector
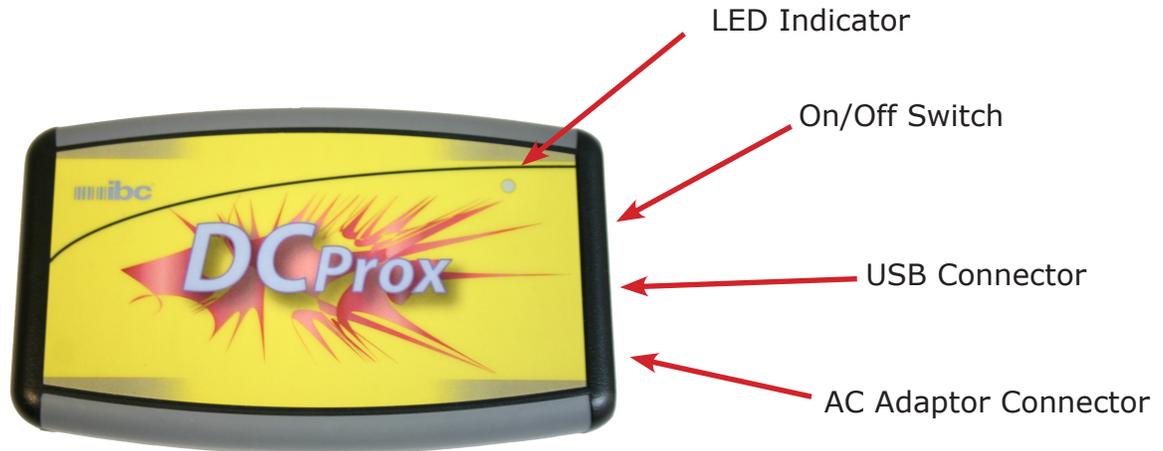
Package Contents

Included in your package should be:

1 DCProx
1 AC Adapter
1 USB cable

Please inspect your package to be sure that you have all of the items listed.

DCProx Features

The DCprox is a portable proximity reader containing 512K of memory for storing card information. Card data nay be saved with an optional date/time stamp, an optional 5 character reader identification, and a 10 character description.

On the right side of the DCProx is a usb connector, a receptacle for the supplied ac adapter, and an on/off switch.

The DCProx can be powered from the ac adapter, the usb cable, or 2 AA batteries. The usb cable and ac adapter can be connected at the same time and will not harm the DCProx, even if there are batteries in it.

Up to 65000 records can be stored in the DCProx. If the DCProx becomes full a warning sound of 6 beeps will occur. At that time, further card reads will not be stored.

The DCProx can read Awid, Farpointe, and Hid proximity cards. Proximity formats are user programmable. Proximity formats can be programmed using the DCProx utility software program, or by sending commands directly to the reader. Three different proximity formats can be programmed.

The DCProx can be programmed to turn off automatically after a period of inactivity to extend battery life when operating on batteries.

A status led is located on the front of the reader. The led will flash red once every 5 seconds as a notification that the reader is turned on. When a card is presented that matches the programmed proximity format, the led will turn green for 1 second.

The DCProx can be used with any software that supports the DC series readers. If you have written your own software to support any DC reader, the migration to the DCProx will require few modifications to your software if any. Contact IBC for further details.

On/Off Button

When operating in the battery mode with no usb cable or ac adapter connected, the button on the side of the DCProx is pushed to turn it on. To turn the DCProx off, push the button and hold it for a few seconds until the DCProx turns off. The button is not used if powering from the ac adapter or the usb cable.

Batteries

DCProx can operate using 2 AA batteries. The batteries are inserted by removing the battery cover on the back of the reader.

Card Formats

The DCProx is programmed by default to read Awid, Farpointe, and Hid cards. You can turn processing off for any of these types of cards.

Date/Time Stamping

The DCProx is shipped from the factory with the time set to EST.

Indoor Use Only

The DCProx is not weatherproofed. Use indoor only.

Reader ID and Description

A 5-character reader id and 10-character description field can be programmed into the reader. These fields can optionally be stored with every card scan. The reader-id is typically used to identify the physical reader. The description field is typically used to identify something about the card scan. For example, the description field could be used to identify a class name, when the reader is used to collect attendance scans from multiple classes before uploading to a pc.

Operational Modes

The DCProx can be used in 3 different operational modes:

Mode 2   Collection Mode.

This is the standard operational mode where card scans are stored in memory for subsequent uploading.

Mode 1   Online Mode.

In this mode, cards which are read are not stored. Card data is transmit ted directly to the pc (using the virtual com port driver).

Mode 3   Dump Mode

In this mode, each bit of the card ("1" or "0") is transmitted directly to the pc (using the virtual com port driver).

Operating the DCProx

Connect the ac adapter to the DCProx and plug in the ac adapter. You will hear a startup beep from the reader.

The default proximity format for the DCProx is 26 bits. If you are using 26 bit cards you can test the reader by presenting a card at this time. When the card is read, the reader will beep, and the led will turn green for 1 second. If you do not have a 26 bit card, when you present the card the led will turn red, signifying that the card does not match the default format.

Once the card is accepted, it will be saved in memory along with the current date and time.

The red led will blink every 5 seconds to show that the reader is operational.

Uploading data to a PC

Once you're reading cards, you can look at the data which was just saved by the card, by running the DCProx Utility software and uploading the data to a text file on your PC. To use the utility software, you will need to install a USB driver, and the DCProx Utility software. The utility is found on the IBC website. The USB driver can be found at www.ftdichip.com (a link is provided on the IBC software page also).

Programming Commands

All commands sent to the reader must be terminated with a hex 0D (carriage return).

The default communication settings are:

> baud rate: 9600
> data bits: 8
> parity: none

There are no embedded spaces in the commands. Spaces shown here between command parameters are for readability only.

The command set is similar to the command set for SA and STA products. Software written for SA or STA products will require minimal or no changes to work with the DCProx reader. Note that some of the SA/STA commands do not return an acknowledgement. This

To maintain compatibility with the SA and STA command set, some commands will not respond with any acknowledgement unless the DCProx is programmed to respond to all commands. The DCProx can either simulate SA/STA responses, or send responses for all commands.

Reset Record Size (and clear memory)

\ xx d r s

> xx   data size, min=4, max=40
> d   include date/time with data, 0=no, 1=yes
> r   include the reader id with data, 0=no, 1=yes
> s   include the reader description with data, 0=no, 1=yes

This command clears all data in the reader, and sets the record size. The record size must be set to the largest size of any data you may be reading. If you're reading 26 bit cards, and storing the 5 digit ID number only, then the record size must be at least 5. If you attempt to read any card number which is larger than the record size, the reader will ignore that card and not read it.

If d is set to "1", the date and time will be included with each card scan. The date and time is stored as YYMMDDHHMMSS.

If r is set to "1", the 5-character reader-id is stored with each card scan.

If s is set to "1", the 10-character description field is stored with each card scan.

The DEFAULT record size is 20, with date and time, no reader id or description.

Version command

V

Returns the reader firmware identification string.

Set Time

+ yy mm dd hh mm ss x

yy	2 digit year
mm	2 digit month
dd	2 digit day
hh	2 digit hours (00-23)
mm	2 digit minutes
ss	2 digit seconds
x	day of week (1=Monday, 7=Sunday)

Sending this command to the reader sets the date and time in the reader.

Get Time

t

Returns the date and time from the clock in the reader. The format is YYMMDDHHMMSSx (same as above).

Get Number of Records

z

Returns the following information:

aaaaa bbbbb ccccc

aaaaa	number of available records in the reader for storing data
bbbbb	number of records used
ccccc	number of records uploaded

Set Reader ID

g xxxxx

xxxxx   5 character Reader ID

Sets the Reader ID in the reader. The Reader ID can optionally be saved along with card data whenever a card is read.

Set Reader Description

h xxxxxxxxxx

xxxxxxxxxx   10 character Reader Description

Sets the Reader Description in the reader. The Reader Description can optionally be saved along with card data whenever a card is read.

Set Reader Mode

| x

x   1,2, or 3 (see page 5 - Operational Modes)

Sets the operational mode of the reader.

Note that if the reader is in mode 1 (online transmit to pc) or mode 2 (data collection)

the reader will read only cards that match one of the defined formats.

Note that in mode 3 (dump bit mode) the reader will read any card irregardless of the bit count but the card type (Farpointe, Hid, or Awid) must be allowed.

Get Saved Record (Get Log Item)

l (lower case L)

Returns a saved record. The format of the data will be date/time, reader id, reader description, proximity card data.

Date and time, Reader id, and Reader description are optional fields. By default, the date and time is always in the data record.

The next data record will be returned. When all records have been uploaded, "END" will be sent by the reader.

Clear all Data (Clear Log)

lc or cl

Both of these commands clear all of the saved data in the reader.

Reset Log Position

lr

Resets the upload pointer to the beginning of log data. The next l command will upload the first record stored.

Get Reader Parameters

?

Returns the following information:

rr 1 2 3 iiiii dddddddddd

rr   data record length
1   0=date/time is not saved with data
                1=date/time is saved with data
2   0=reader id is not saved with data
                1=reader id is saved with data
3   0=reader description is not saved with data
                1=reader description is saved with data
iiiii   5 character reader id
dddddddddd 10 character reader description

Restart Reader

<null> X

Restarts the reader. Use this command when you have changed a parameter which re-
quired a restart to take effect, such as the baud rate parameter. <null> refers to the null
character (hex 00).

Reset Reader

<null> U

Resets the reader to factory defaults. Any data currently stored in the reader is lost.
<null> refers to the null character (hex 00).

Full Response

X107 x

    x   1=full response
                0=disabled

The DCProx by default is programmed to respond to commands in the same way as pre-
vious DC series readers. With older DC series readers, the readers did not respond to
certain commands. For example, the readers would not send an acknowledgement to a
mode command.

If Full Response is turned on, then the reader will respond to every command. Those commands that do not return data to the pc will be acknowledged with either OK or NOK (not OK).

Serial Parameters

X014 b p ttt ttt

b	1=1200 baud	
	2=2400 baud	
	3=4800 baud	
	4=9600 baud (default)	
	5=19200 baud	
	6=38400 baud	
	7=57600 baud	
	8=115200 baud	
p	1=8 data bits, no parity (default)	
	2=7 data bits, even parity	
	3=7 data bits, odd parity	
ttt	RFU, must be 000	
ttt	RFU, must be 000	

General Proximity Settings

X073 m k b p s

m	must be "1"
k	1=masking on, 0=masking off
b	1=beep on good read, 0=no beep
p	must be "0"
s	must be "0"

Card Format Programming

X074 bbb sss sl b bss bl b	format 1 part 1
X075 iss il b sc ic uc	format 1 part 2
X076 bbb sss sl b bss bl b	format 2 part 1
X077 iss il b sc ic uc	format 2 part 2
X078 bbb sss sl b bss bl b	format 3 part 1
X079 iss il b sc ic uc	format 3 part 2

bbb	total number of bits on the card
sss	starting bit position of the site (facility) code
sl	number of bits for the site code
b	0=normal bit order (msb), 1=reverse bit order (lsb)
bss	starting position of the id code
bl	number of bits for the id code
iss	starting position of the issue code
il	number of bits for the issue code
sc	number of characters for the site code
ic	number of characters for the id
uc	number of charactres for the issue code

3 different card formats can be programmed into the reader. Cards which are read must match one of these formats to be considered a good read.

sss,bss,iss are the starting bit positions on the card for the site,id, and issue code fields. If you are not using all of these fields, program the unwanted fields to 000.

Sl,bl,il are the number of bits on the card for the respective fields. Use 00 for any un-wanted fields.

Sc,ic,uc are the number of digits to convert the card field data into. If set to 00, the field is ignored.

An example for programming a 26 bit card to result in an 8 digit field, 3 digits for the facility code and 5 digits for the id:

   X074 026 002 08 0 009 16 0
   X075 000 00 0 03 05 00

Card Data Masking

```
X080 p1 ll1 p1 ll2                    format 1 part 1
X081 p3 ll3 p4 ll4 p5 ll5             format 1 part 2
X082 p1 ll1 p1 ll2                    format 2 part 1
X083 p3 ll3 p4 ll4 p5 ll5             format 2 part 2
X084 p1 ll1 p1 ll2                    format 3 part 1
X085 p3 ll3 p4 ll4 p5 ll5            format 3 part 2
```

p1	1st position
ll1	data for 1st position
p2	2nd position
ll2	data for 2nd position
p3	3rd position
ll3	data for 3rd position
p4	4th position
ll4	data for 4th position
p5	5th position
ll5	data for 5th position

Card Masking allows you to select specific portions of the decimalized proximity data to include in the saved data. My using the masking, you can delete specific portions of the data and also insert characters into the data. For example, if you have two types of cards, 26 bit and 35 bit, you may want to preceed the 35 bit data with an indicator to show that the particular card data was from a 35 bit card.

There is one mask for each of the card formats. The mask is executed only if the prox card matches the length specified in the prox format, and masking is turned on.

To select a specific part of the data to include in the saved data, set the p(x) parameter to the start position in the data and set ll(x) to the length in characters. You can also set the ll(x) parameter to 000, which means "select all remaining data".

Example: Decimalized prox data is 1234567890

    Command: X080 06 003   Result: 678
    Command: X080 06 000   Result: 67890

To insert a character in the masked data, set the p(x) parameter to 00 and the ll(x) parameter to the 3 digit decimal ascii value of the character you want to insert.

Example: Decimalized prox data is 1234567890

    Command: X080 01 005 00 065 05 000   Result: 12345A67890

Each mask requires two commands to be sent to the reader - part 1 and part 2.

Card Selection

X121 x y z

x	read Farpointe cards	0=off, 1=on
y	read HID cards	0=off, 1=on
z	read Awid cards	0=off, 1=on

Low Power and Sleep Modes

X122 xxx yyy

xxx	# seconds NOT in low power mode, 000=no low power, max=250
yy	# minutes prior to sleep, 00= always on

The reader can be programmed to shut down after yy minutes of incactivity. If yy is set to 00, then the reader will never shut down automatically. If the reader shuts down, it can only be turned back on using the switch.

The reader normally is not in low power mode. In low power mode, the reader will use less power when idle, however it will take longer for a proximity card to read and the proximity card needs to be closer. If xxx is set to 000, then the reader will never go into low power mode. If xxx is set to any value other than zero, then whenever a proximity card is read, the reader will turn low power mode off for xxx number of seconds, then go back into low power mode to conserve power until the next proximity card is read.