

# STANDARD Interface

## DATAWIN OMR

### Programming manual

Edition 020701\_01

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CHAPTER 1 : GENERAL DESCRIPTION

**General**

This program is developed in order to enable any user to connect their DATAWIN reader to (almost) any computer. After power-on, before the feed command, it is possible to send the reader a list of commands to suit your computer interface. The commands are described in this document.

**How to use it?**

The reader is entirely under computer's control and doesn't proceed by itself to a logical control of the read data.

The computer sends to the reader the configuration, reading and ejecting commands. These parameters are not registered in the reader.

The reader sends the read marks to the computer according to two ways to be chosen from:

- Hexadecimal mode: each document line has a 12 character code
- Coordinates mode: each mark is sent in a 4 character form showing  
The line and track numbers.

The user can define if the reader must wait for a command from the computer (acceptance or rejection of documents) after each document, or if the reading and transmission of data must be sent for each document without waiting for any command.

The reader sends error messages (no document to be read, no clock-marks on document...) to the computer, which has to take the decision on the processing follow up.

The reader is entirely guided by the computer.

The communication protocol is fixed but it can be modified via serial interface.

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The protocol is compatible with STANDA from KAISER (versions 6.08 and 7.01) and FORM from AXIOME and EMU from CENT.

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CHAPTER 2: The feeding commands

**L command**

'L'            Hex value : 4C H  
Read a document and send the data in hex format (12 characters per line). The reader is in auto feed mode: as soon as a document is laid onto the reader, it will be transported and read. No error messages will be sending.

A line (status) is sent if at least one track is marked.

'I'            Hex value: 6C H  
Same format as 'L' command, but the reader will wait the 'I' command to feed the next document. The error messages will be sent.

A line is sent if at least one track is marked.

**Hex format reader output string** (Hex format see appendix B)

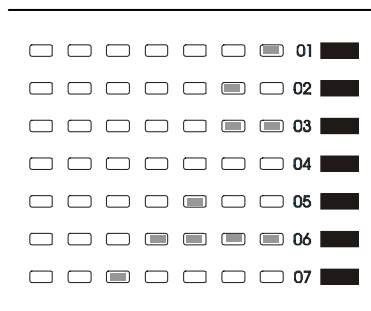
ccddddddddd

- cc    =    Clock number in DECIMAL code
- d     =    Read data in HEX code
- <CR>=    Carriage return
- <LF> =    Line feed

<CR> <LF> always follows the last string

Example:

```
010000000001
020000000002
030000000003
050000000004
06000000000F
070000000010<CR><LF>
```



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**K command**

'K' Hex value: 4B H  
Same as 'L' command, but the data are sent as coordinates

A line (status) is sent if at least one track is marked.

'k' Hex value: 6B H  
Same as 'l' command, but the data are sent as coordinates

A line (status) is sent if at least one track is marked.

**Coordinates reader output string**

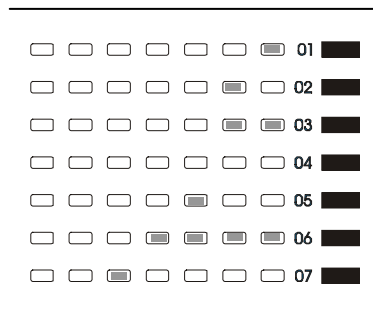
cctt

cc = Clock number in DECIMAL code  
tt = Track number in DECIMAL code (01 to 40)  
<CR>= Carriage return  
<LF> = Line feed

<CR> <LF> always follows the last string

Example:

0101  
0202  
0301  
0302  
0504  
0601  
0602  
0603  
0604  
0704<CR><LF>



### **G command**

'G'            Hex value: 47 H  
Eject the sheet to the good "Gut" output tray

'g'            Hex value: 67 H  
Same as 'G' command.

### **S command**

'S'            Hex value: 53 H  
Eject the sheet back to the input tray for all the manual DATAWIIN readers. For the readers with two output trays, the document is sent to the "bad" output tray.

's'            Hex value: 6B H  
Same as 'S' command.

### **W command**

'W'            Hex value: 57 H  
Resend to the host the data of the last reading document (this command can be used many time, while the sheet remain not ejected).

'w'            Hex value: 77 H  
Same as 'W' command.

Chapter 4: The configuration commands

**The following commands have to be configured before started reading the first document**

**C command**

'C'            Hex value: 43 H  
Set the reader to place the number of clocks read, on each document, at the beginning of the data record (see example).

Hex format reader output string

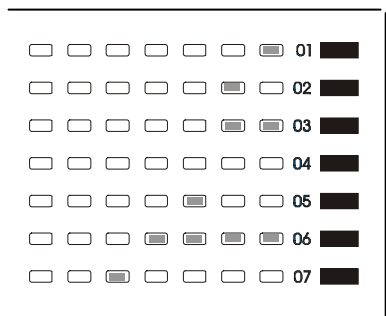
nnnccddddddddd

- nnn    =    Number of clock marks read on the document
- cc     =    Clock number in DECIMAL code
- d      =    Read data in HEX code
- <CR> =    Carriage return
- <LF> =    Line feed

Example: "with 'L' command"

nnnccddddddddd....

**007010000000001**  
0200000000002  
0300000000003  
0500000000004  
060000000000F  
070000000010<CR><LF>



'c' \*            Hex value: 63 H  
With lowercase c, this option is reset and the number of clock marks will be no more transmitted.

\* Indicates the default values after power-on

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### O command

'O'            Hex value: 4F H  
Set the reader to place CR and LF characters after each elementary data in the record (every line is followed by CR and LF).

Example:    "with 'L' command"

```
ccddddddddd<CR><LF>ccddd...
```

cc    =    Clock number in DECIMAL code  
d     =    Read data in HEX code  
<CR> =    Carriage return  
<LF> =    Line feed

Example:

```
010000000001<CR><LF>  
02000000000B<CR><LF>  
03000000000F<CR><LF>
```

Example:    "with 'K' command"

```
cc<CR><LF>cc<CR>...
```

cc    =    clock number in DECIMAL code  
tt    =    Track number in DECIMAL code  
<CR> =    Carriage return  
<LF> =    Line feed

Example:

```
0101<CR><LF>  
0201<CR><LF>  
0202<CR><LF>  
0204<CR><LF>  
0301<CR><LF>  
0302<CR><LF>  
0303<CR><LF>  
0304<CR><LF>
```

'o' \*            Hex value: 6F H    - Reset the option, CR and LF will no more send

\* Indicates the default values after power-on



## Programming Manual **X command**

'X'            Hex value: 58 H  
Set the reader to place data between STX and ETX instead of CR and LF at the end.

Example: "with 'L' command"

```
<STX>ccdddddddddccddd...<ETX>
```

cc        =    Clock number in DECIMAL code  
d        =    Read data in HEX code  
<STX> =    Start of Text  
<ETX> =    End of text

Example:

```
<STX>010000000001  
02000000000B  
03000000000F<ETX>
```

Example: "with 'K' command"

```
<STX>ccttcct...<ETX>
```

cc        =    Clock number in DECIMAL code  
tt        =    Track number in DECIMAL code  
<STX> =    Start of Text  
<ETX> =    End of text

Example:

```
<STX>0101  
0201  
0202  
0204  
0301  
0302  
0303  
0304<ETX>
```

'X' \*            Hex value: 78 H - Reset the option, return in CR / LF mode.

The both mode ('O' and 'X') can be selected.

\* Indicates the default values after power-on

## **D command**

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'D' Hex value: 44 H  
In case of, your reader can read 2 side sheets, the reader will send first the data of side 1, then send R and then data of side 2.

Example: "with 'L' and 'O' command"

	Side 1
010000000001	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 01 <input checked="" type="checkbox"/>
020000000002	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 02 <input checked="" type="checkbox"/>
030000000003	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 03 <input checked="" type="checkbox"/>
050000000004	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 04 <input checked="" type="checkbox"/>
06000000000F	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 05 <input checked="" type="checkbox"/>
070000000010	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 06 <input checked="" type="checkbox"/>
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 07 <input checked="" type="checkbox"/>

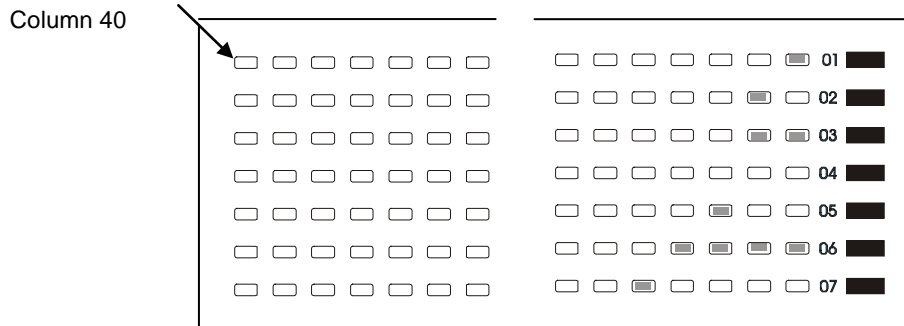
	Side 2
R010000000001	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 01 <input checked="" type="checkbox"/>
020000000002	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 02 <input checked="" type="checkbox"/>
030000000003	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 03 <input checked="" type="checkbox"/>
050000000004	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 04 <input checked="" type="checkbox"/>
06000000000F	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 05 <input checked="" type="checkbox"/>
070000000010<CR><LF>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 06 <input checked="" type="checkbox"/>
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 07 <input checked="" type="checkbox"/>

'd' \* Hex value: 64 H  
The reader will only send the data of side 1.

\* Indicates the default values after power-on

Programming Manual  
**R command**

'R' Hex value: 52 H  
This command will make a rotation of 180° of the sheet. The reader will send the first clock as the last and the first colon as the last.



The output format after an 'I':

```
010000000001
020000000002
030000000003
050000000004
06000000000F
070000000010
```

The output format after an 'R' and a 'I'

```
010800000000
02F000000000
032000000000
05C000000000
064000000000
078000000000
```

'r' \* Hex value: 72 H  
This command will make no rotation of 180° of the sheet

\* Indicates the default values after power-on

## Programming Manual **B command**

'B'           Hex value: 42 H  
In case of, your reader is equipped with barcode reading option and you want only to read the barcode data, this command instructs the reader to process only the barcode.  
The barcode data are preceded and followed by ' ' (Hex value: 22 H)

"yyy...yy"

'b' \*       Hex value: 62 H  
The barcode data follows the OMR data

ccddddddddd "yyy...yy"

cc     =     Clock number in DECIMAL code

d       =     Read data in HEX code

<CR> =     Carriage return

<LF> =     Line feed

\* Indicates the default values after power-on

### **Error messages after a lowercase command**

If the host command was 'l' or 'k' (lowercase) and a function goes wrong, the reader responds with one of the following error messages.

The error messages are preceded and followed from STX and ETX if this mode is selected.

M00	No document present to read
M02	The input tray is not empty (manual reader)
M08	Bad feeding
M20	Output tray full (on automatic reader)
M70	Too thick (on automatic reader)
M99	No clock mark on the document

Example: After a lowercase command

In ETX mode                    <STX>M99<STX><ETX>

\* In LF mode                    M99<CR><LF>

### **Error messages after an uppercase command**

With uppercase command no error message will be sent.

\* Indicates the default values after power-on

CHAPTER 6: Information

**V command**

'V'            Hex value: 56 H  
              Ask the reader to send the software version number to the host.

'v'            Hex value: 76 H  
              Same as 'V'

Example:

A60 STAND    010301 E130

CHAPTER 7: RS 232

Default Baud-rate: 9600 7 E

**SP** – Position in Parameter file “?\_NORM.TXT”

Bit 0 – 2     = baud rate 7(2400), 6(4800), 5(9600), 4(19200), 3(38400)  
Bit 3         = with parity  
Bit 4         = parity even  
Bit 5         = 7-bit  
Bit 6         = with CTS-handshake  
Bit 7         = with XON/XOFF handshake

Example

3D     = 9600 7 E  
04     = 19200 8 N

CHAPTER 8: Hex code description

Hex	Binary	8	7	6	5	4	3	2	1	
01	0000 0001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
02	0000 0010	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
03	0000 0011	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
04	0000 0100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
05	0000 0101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
06	0000 0110	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
07	0000 0111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
08	0000 1000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
09	0000 1001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
0A	0000 1010	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10
0B	0000 1011	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
0C	0000 1100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
0D	0000 1101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13
0E	0000 1110	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14
0F	0000 1111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15
10	0001 0000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16
11	0001 0001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17
12	0001 0010	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18
13	0001 0011	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19
14	0001 0100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20
15	0001 0101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21
16	0001 0110	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22
17	0001 0111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23
18	0001 1000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24
19	0001 1001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25
1A	0001 1010	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26
1B	0001 1011	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27
1C	0001 1100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28
1D	0001 1101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29
1E	0001 1110	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30
1F	0001 1111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31
20	0010 0000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32
21	0010 0001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33
...										34