

## COMPA V

Interface Description



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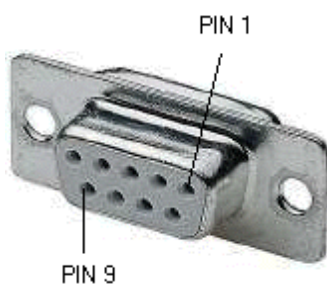
## Table of Contents

<b>1</b>	<b>Serial Data Transmission .....</b>	<b>5</b>
1.1	Connector Assignment (9-pin DSUB Socket) .....	5
1.2	Connection Plan RS232 .....	6
<b>2</b>	<b>Text, Bar Code, Graphic .....</b>	<b>7</b>
2.1	Definition of Rotation .....	7
2.2	Definition of Datum Point.....	7
<b>3</b>	<b>Data Format.....</b>	<b>9</b>
3.1	Explication .....	10
3.2	Definition of Field Attributes/Field Properties (optional) .....	11
3.3	Field Name .....	12
3.4	Field Selection by Free Definable Field Number.....	16
<b>4</b>	<b>Mask Set .....</b>	<b>17</b>
4.1	Text.....	17
4.2	One-Dimensional Bar Code .....	19
4.3	ITF Bar Code .....	20
4.4	PDF417 .....	21
4.5	MAXICODE .....	22
4.6	DataMatrix .....	23
4.7	GS1 DataMatrix .....	24
4.8	CODABLOCK F.....	25
4.9	GS1 DataBar (RSS Code).....	26
4.10	QR Code.....	27
4.11	Aztec Code .....	28
4.12	Rectangle .....	29
4.13	Line.....	29
4.14	Internal Graphic.....	30
<b>5</b>	<b>Text Set.....</b>	<b>31</b>
5.1	Examples.....	32
<b>6</b>	<b>Graphic Set .....</b>	<b>33</b>
6.1	General Graphic Format.....	33
6.2	Graphic in PCX Format .....	33
6.3	Example PCX File .....	34
<b>7</b>	<b>Variables.....</b>	<b>35</b>
7.1	Set Structure.....	35
7.2	Link Field .....	35
7.3	Counter.....	36
7.4	Extended Counter.....	37
7.5	Date and Time .....	38
7.6	Format Identifier (Date & Time).....	39
7.7	Currency Variable.....	42
7.8	Shift Variable .....	43
7.9	User Guiding.....	44
7.10	User Guiding with Mask .....	45
7.11	Memory Card Data .....	46
7.12	GS1-128 Parser.....	46
7.13	EPC Calculation (Electronic Product Code).....	47
7.14	Check Digit .....	48
7.15	Substring .....	49

<b>8</b>	<b>Parameter Sets .....</b>	<b>51</b>
8.1	Label Parameters .....	51
8.2	Photocell.....	57
8.3	Printer Parameters .....	59
8.4	Interface.....	65
8.5	Network .....	67
8.6	Offset Values.....	71
8.7	Service Functions.....	73
8.8	Date & Time.....	77
8.9	Password.....	80
8.10	SD Card.....	82
8.11	Printing .....	86
8.12	Emulation.....	90
<b>9</b>	<b>Parameter Sets for Options .....</b>	<b>91</b>
9.1	Cutter.....	91
9.2	Dispenser I/O.....	93
9.3	Label Applicator.....	99
<b>10</b>	<b>Configuration &amp; Status .....</b>	<b>105</b>
10.1	Autostatus.....	106
<b>11</b>	<b>Monitored Printing.....</b>	<b>109</b>
11.1	Short Introduction .....	109
11.2	Parameter Sets (Host – Printer) .....	109
11.3	Direct Enquiry .....	110
11.4	Answer Sets (Printer – Host).....	110
11.5	Sample Label.....	112
<b>12</b>	<b>Font Examples .....</b>	<b>113</b>
12.1	Bitmap Fonts (Not Proportional).....	113
12.2	Bitmap Fonts (Proportional) .....	113
12.3	Vector Fonts .....	113
<b>13</b>	<b>Index .....</b>	<b>115</b>

## 1 Serial Data Transmission

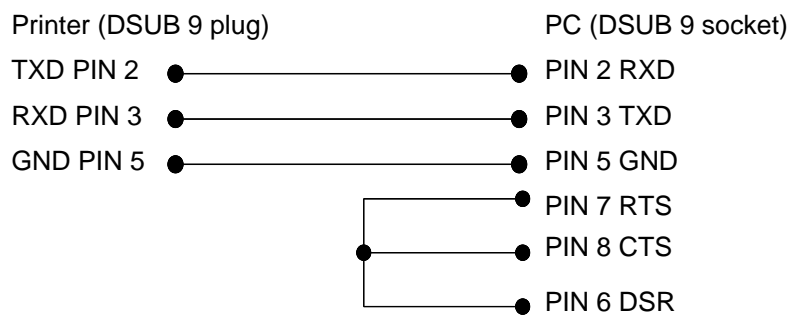
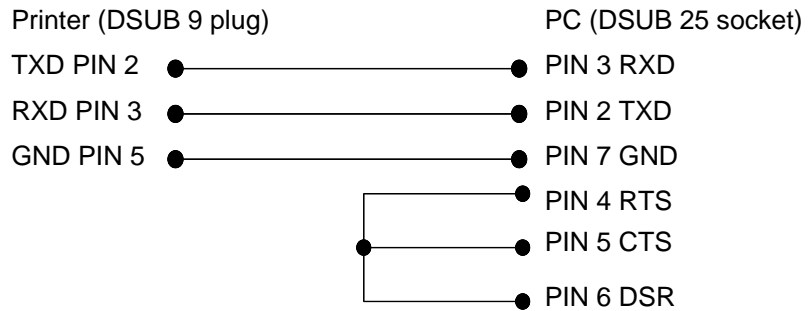
### 1.1 Connector Assignment (9-pin DSUB Socket)



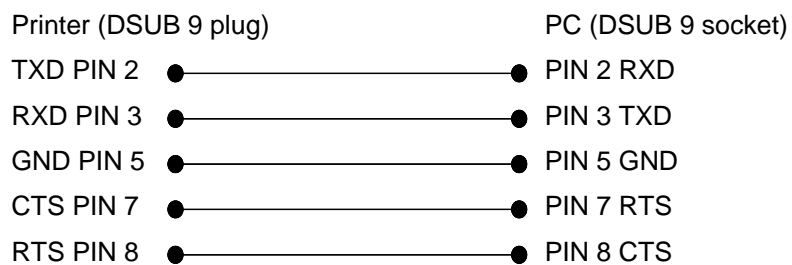
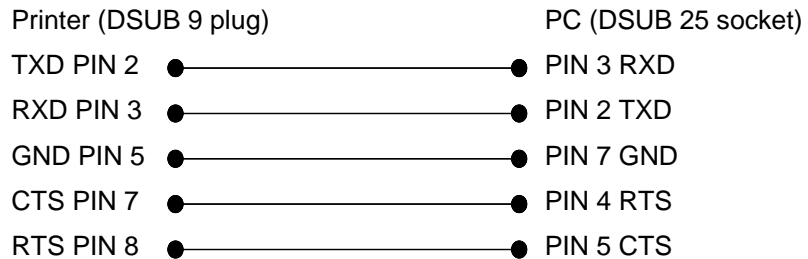
Pin	Signal	Description
2	T x D	Transmitting data line
3	R x D	Receiving data line
5	GND	GND signal
7	CTS	HW Handshake
8	RTS	HW Handshake

## 1.2 Connection Plan RS232

### Software Handshake

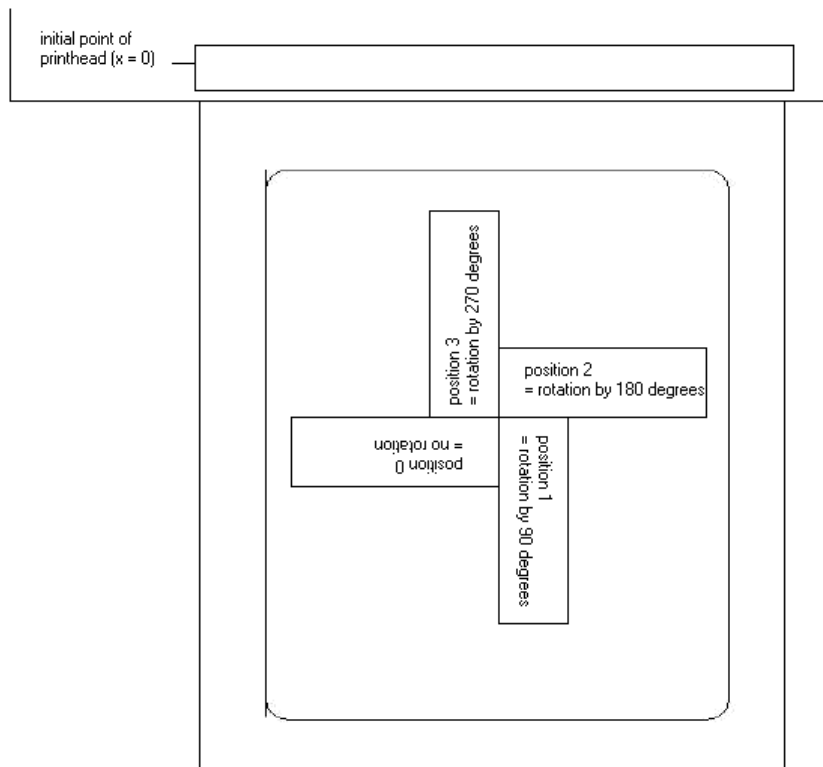


### Hardware Handshake



## 2 Text, Bar Code, Graphic

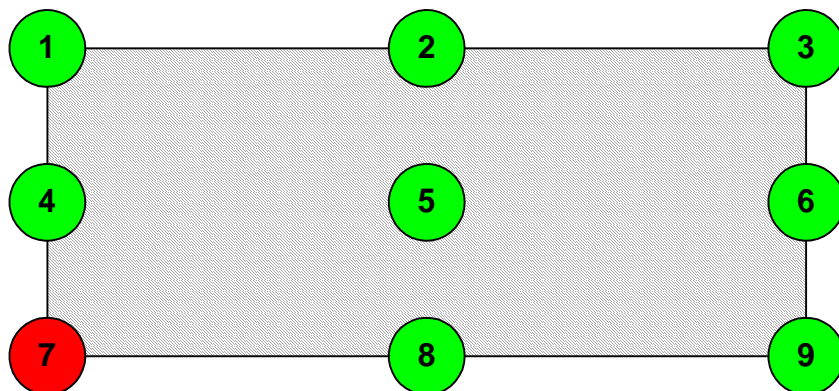
### 2.1 Definition of Rotation



### 2.2 Definition of Datum Point

The so-called datum point is the relation point for indication of position. In the meantime the datum point is also the point at which the selected object is rotated.

To determine the datum point in the mask sets, the possible datum points are numbered from left top (1) to right bottom (9). The default datum point is left bottom (7). This datum point is also used even if no indication is found in the mask set.







### 3 Data Format

The data format consists of four parties:

- Mask set
- Text
- Graphic
- Command

For a n-line label the following has to be transmitted:

- n - mask sets
- n - text sets
- n - graphic sets (if necessary)
- 1 - command set



#### NOTICE!

The command set always has to be transmitted at the end!

To each text on a label belong one MASK SET and one TEXT SET with the same field number.

To each code on a label belong one MASK SET, one TEXT SET and one CODE SET with the same field number.

To each box or line on a label belongs only one MASK SET.

To each graphic on a label belong several GRAPHIC SETS according to its size res. height, e.g. a graphic with a height of 10 mm needs 80 graphic sets.

#### Examples

Label with 3 lines of text:	3 mask sets 3 text sets 1 command set
Label with 2 lines of text, 1 box and 3 lines	6 mask sets 2 text sets 1 command set

For ALL data sets the following is valid:

Each set starts with

SOH = start of header → HEX format 01

Each set ends with

ETB = end of data transmission block → HEX-Format 17

Alternatively, the start character SOH can be set to 5E<sub>Hex</sub>, the end character ETB to 5F<sub>Hex</sub>. This is necessary if the connected system (e.g. UNIX) cannot transfer control signs.

All other data sets → ASCII format, but they will be transmitted as hexadecimal characters.

#### Example

A = identification of mask set - transmission: 41<sub>HEX</sub>

n = field number '01' - transmission: 30<sub>HEX</sub>, 31<sub>HEX</sub>

### 3.1 Explication

**x coordinate:** Distance from right label rim in mm  
Measured from the right label rim up to the lower left point of the corresponding line

**y coordinate:** Distance from upper label rim in mm  
Measured from the beginning of the label down to the lower left point of the corresponding line

**Bitmap fonts  
(not proportional)**

01 = Font 01	0,8 x 1,1 mm	127 characters
02 = Font 02	1,2 x 1,7 mm	255 characters
03 = Font 03	1,8 x 2,6 mm	255 characters
04 = Font 04	4,0 x 5,6 mm	127 characters
05 = Font 05	1,8 x 3,2 mm (descender)	255 characters
06 = Font 06	1,5 x 2,9 mm	127 characters
07 = Font 07	1,2 x 2,2 mm (descender)	255 characters

**Bitmap fonts  
(proportional)**

21 = Font 21	(1,0; 13)	255 characters
22 = Font 22	(1,8; 21)	255 characters
23 = Font 23	(2,6; 31)	255 characters
24 = Font 24	(5,6; 67)	255 characters
28 = Font 28	(4,0; 48)	255 characters
29 = Font 29	(0,8; 9)	255 characters



**NOTICE!**

In order to reach best print results it is recommended always to choose the biggest possible font.

**Vector fonts  
(proportional)**

When in mode 'proportional text', the height and width of text have to be entered in mm.  
These values refer to the capital 'M', i.e. the values of other characters are changing in proportion.

**Vector fonts  
(autoscale)**

When in autoscale mode, height and width of text has to be entered in mm.  
The height of the text refers to all capital letters. When using small characters and descenders the height is changing in proportion. When entering the width, the complete file has to be considered. The text will be adjusted automatically, which means that the width of the characters is changing.

### 3.2 Definition of Field Attributes/Field Properties (optional)

#### Explanation

Additionally to mask set 'AM[ ] ...' the possibility was created to define further field properties. In order to achieve a high flexibility, the field properties received own names/identifications. Therefore the sequence as well as the number of field properties is free. If necessary, the mask set 'AC[ ]' is transferred additionally to mask set 'AM[ ]' to the printer.

#### Structure mask set

(SOH)AC[ ]at1=*value*;at2= *value*;...(ETB)

Attribute (at):	Description
BT BW QZ	<b>ITF 14 (see page 20)</b> bearer bar type bearer bar width quiet zone in 1/100 mm
NAME	<b>Field name (see page 12)</b> definition of field name
FN	<b>Field number (see page 16)</b> Free definable field number

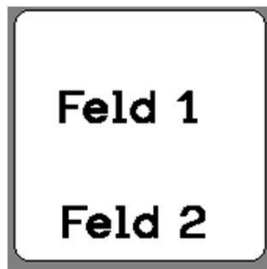
This table is constantly extended. The current version is available on demand.

### 3.3 Field Name

#### Application (customized)

When label printers are connected to a computer system or machine controls, there is often the requirement that variable data is to be inserted into an existing layout. This data contents come from the superordinate computer system (database) or a machine control (e.g. PLC, scale, ERP system, etc.). Basically, it was always possible to integrate variable data into a 'loaded' layout (mask). The access to certain fields has been effected via the field index, i.e. a consecutive number. This field index is generated by Labelstar Office and can also change with layout changes, whereby the data allocation to the computer system/control is no longer correct.

#### Exmple



#### Print data

```
...
// TEXT (1/100 mm)
(SOH)AM[1]2405;803;0;1;2;4;1;1;0(ETB)
(SOH)BM[1]Feld 1(ETB)
// TEXT (1/100 mm)
(SOH)AM[2]421;856;0;1;2;4;1;1;0(ETB)
(SOH)BM[2]Feld 2(ETB)
// LINES: 2
...
```

The print data contains the definitions for the two text fields. The field index is always in '[ ]' of the mask or text setting.

If the text field 'Feld 1' is deleted on the label and then recreated, it gets a new index. In this case '2'. The text field 'Feld 2' gets the index '1'. As a result, an assignment via the field index is used only to a limited extend, without manual post-processing of the layout data.

**Explanation**

As an alternative to the field index, the assignment can also be made via the field name. A change in the field index has no longer any influence, and a changed layout is still filled in the right places with variable data of the computer system/control system.

Labelstar Office: The print data is supplemented by the following line:

(SOH)AC[1]NAME="*Field name*"(ETB)

The field content defined via the text block can be changed by the computer system/control with the following command:

(SOH)BV[*Field name*]Feld 2(ETB)

This results in the following standard procedure for the connection to a high-level control and/or computer system.

**Label design with Labelstar Office**

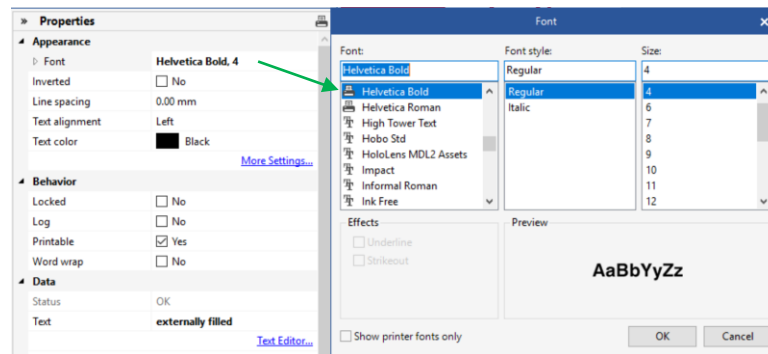
The field names are automatically transferred by Labelstar Office.

The screenshot shows the 'Properties' dialog box in Labelstar Office. The 'General' section is expanded, and the 'Name' field is set to 'Field1'. A green arrow points to the 'Field1' text. Other sections like 'Appearance', 'Behavior', and 'Data' are also visible.

» Properties	
<b>Appearance</b>	
Font	Helvetica Bold, 4
Inverted	<input type="checkbox"/> No
Line spacing	0.00 mm
Text alignment	Left
Text color	<span style="background-color: black; color: black;"> </span> Black
<a href="#">More Settings...</a>	
<b>Behavior</b>	
Locked	<input type="checkbox"/> No
Log	<input type="checkbox"/> No
Printable	<input checked="" type="checkbox"/> Yes
Word wrap	<input type="checkbox"/> No
<b>Data</b>	
Status	OK
Text	externally filled
<a href="#">Text Editor...</a>	
<a href="#">Additional Commands...</a>	
<b>General</b>	
Name	Field1
<b>Layout</b>	
Base point	Top left
Height	0.25 mm

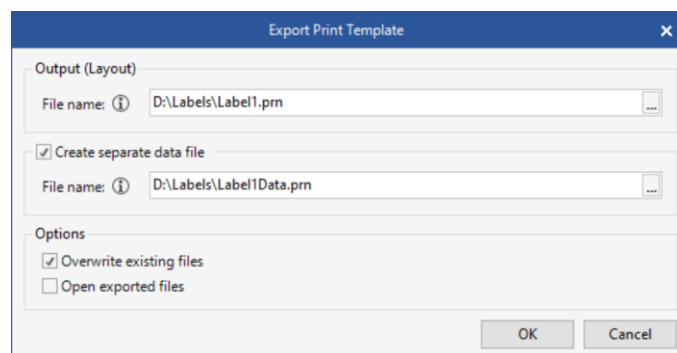
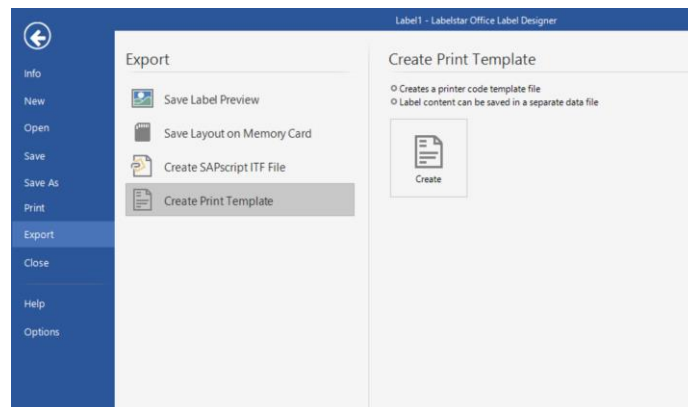
The desired field name (Field1) is entered in the properties of the text field.

For text fields, a printer-internal font must be used. The printer-internal fonts are marked by a printer symbol in the list.



## Export to a print file and save the layout in the external controller

When the label design is finished, the label is exported to a print file. For this, Labelstar Office uses the function **File – Export – Create Print Template**.

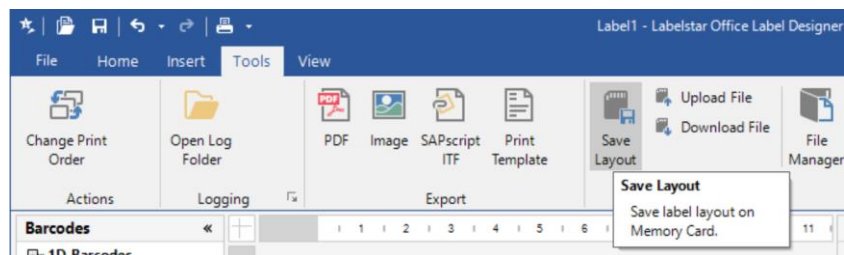


The option **Create separate data file** must be selected, otherwise the line (SOH)**FBC---r-----**(ETB) is included in the print file, which would immediately release a print procedure.

By starting a print procedure, this print file (layout definition / mask definition) is transferred from the controller/computer system to the printer first.

### Save the layout on the memory card of the printer

As an alternative to 'Export to a print file' the label layout is saved on the memory card of the printer. For this, the memory card tool from Labelstar Office can be used.



The layout must be called by the controller/computer system **before** filling the variable fields.

The following parameter set is used:

(SOH)**FMA---rfilename**(ETB)

The path name is determined when saving and possibly contains a path.

Example: "A:\Standard\eti1".

### Filling the variable fields by the controller/computer system

The higher-level control can select the variable fields by the field names and set the contents. Subsequently, the print job is restarted.

#### Example

<b>(SOH)FMB---rfilename(ETB)</b>	Loading the layout from mc
<b>(SOH)BV[ArtBez]screws(ETB)</b>	Filling the field "ArtBez" with "screws"
<b>(SOH)BV[ArtNr]123456789(ETB)</b>	Filling the field "ArtNr" with "123456789"
<b>(SOH)FBC---r----- (ETB)</b>	Start printing

### 3.4 Field Selection by Free Definable Field Number

With the following described attribute it is possible to assign a free definable field number to a field. This field number does not have to be clear, i.e. several fields can have the same field number. In this way the same field contents can be assigned to different fields.

The following attribute identification is defined:

Attribute: **FN**

Description: free definable field number

After the field number was assigned with AC mask statement,

**(SOH) AC [n] FN=nr (ETB)**

n = field index

nr = free definable field number

it is possible to access to the field and/or the fields with the new BF text statement:

**(SOH) BF [nr] text (ETB)**

nr = field number

text = field contents

#### Example

```
// Assignment of field number field 1 and field 2
(SOH)AM[1]1000;2500;0;4;2;7;400;400;0 (ETB)
(SOH) AC [1] FN=100 (ETB)
(SOH)AM[2]2000;2500;0;30;2;4000;9;3;0;1 (ETB)
(SOH) AC [2] FN=100 (ETB)

// Access to field 1 and field 2 by field number
(SOH) BF [100]1234567890 (ETB)
```



## 4 Mask Set

### 4.1 Text

AM[n]y;x;p;a;d;z;dy;dx;lp;dp	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y coordinate in 1/100 mm
x	X coordinate in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 1 = bitmap font 2 = bitmap font inverse 4 = vector font 5 = vector font autoscale 6 = vector font inverse 7 = vector font autoscale inverse
d	rotation 0 = 0°      2 = 180° 1 = 90°     3 = 270°
z	<b>character set not proportional bitmap fonts (1+2)</b> 01 = FONT 01    0,8 x 1,1 mm                      127 characters 02 = FONT 02    1,2 x 1,7 mm                      255 characters 03 = FONT 03    1,8 x 2,6 mm                      255 characters 04 = FONT 04    4,0 x 5,6 mm                      127 characters 05 = FONT 05    1,8 x 3,2 mm - descender            255 characters 07 = FONT 07    1,2 x 2,2 mm - descender            255 characters
	<b>character set proportional bitmap fonts (1+2)</b> 21 = FONT 21    1,0 mm; 13 Pixel                      255 characters 22 = FONT 22    1,8 mm; 21 Pixel                      255 characters 23 = FONT 23    2,6 mm; 31 Pixel                      255 characters 24 = FONT 24    5,6 mm; 67 Pixel                      255 characters 28 = FONT 28    4,0 mm; 48 Pixel                      255 characters 29 = FONT 29    0,8 mm; 9 Pixel                      255 characters
	<b>character set vector fonts (4-7)</b> 01 = Helvetica Bold 02 = Helvetica Bold italics 03 = Helvetica Roman 04 = Helvetica Roman italics 05 = Swiss Light 06 = Swiss Light italics 07 = Baskerville 08 = Baskerville italics 09 = Brush Script 10 = Brush Script italics 11 = Monospace 12 = Monospace italics 17 = OCR-A 18 = OCR-A italics 19 = OCR-B 20 = OCR-B italics

dy	extension in direction Y bitmap fonts factor 0..9 vector fonts character size in 1/100 mm vector fonts autoscale field height
dx	extension in direction X bitmap fonts factor 0-9 vector fonts character size in 1/100 mm vector fonts autoscale field width
lp	distance between single characters in 1/100 mm
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.2 One-Dimensional Bar Code

<b>AM[n]y;x;p;a;d;h;v1;v2;pz;z;dp</b>		
A	identification for mask set	
M	identification for protocol version	
n	Field number	
y	Y position in 1/100 mm	
x	X position in 1/100 mm	
p	identification for phantom field 0 = print                      1 = no print	
a	Identification for field type 30 = Code 39 31 = Code 2/5 interleaved 32 = EAN 8 33 = EAN 13 34 = UPC A 35 = UPC E 36 = CODABAR 37 = Code 128 38 = EAN ADD ON 39 = GS1-128 40 = Code 93 41 = PZN 7 42 = 2/5 Industrie 43 = Leitcode 44 = Identcode 46 = Code 39 extended 47 = Code 128 A 48 = Code 128 B 49 = Pharmacode 60 = PZN 8 62 = USPS Intelligent Mail 63 = POSTNET	
d	Rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°	
h	symbol height in 1/100 mm	
v1	relation 1; module width 'THICK'	
v2	relation 2; module width 'THIN' and/or SC factor	
pz	check digit calculation 0 = no check digit calculation 1 = check digit calculation 4 = inverse - no check digit calculation 5 = inverse - check digit calculation	
z	human readable line 0 = no human readable line 1 = with human readable line	
dp	datum point 1 = left top                      2 = centre top                      3 = right top 4 = left centre                  5 = centre centre                  6 = right centre 7 = left bottom (default)      8 = centre bottom                  9 = right centre	

### 4.3 ITF Bar Code

[illegible]

In order to print the bearer bars of an ITF 14 barcode, the following additional properties for Code 2/5 interleaved must be set:

For this the following field properties are determined:

Property identifier	Description
<b>BT</b>	bearer bar type 0 = no bars 1 = above/below 2 = rectangle
<b>BW</b>	bearer bar width in 1/100 mm
<b>QZ</b>	quiet zone in 1/100 mm

### Example

```
// BARCODE (1/100 mm)
(SOH)AM[1]4498;7076;0;31;2;3000;12;4;0;1;3(ETB)
(SOH)AC[1]BT=2;BW=150;QZ=600(ETB)
(SOH)BM[1]1234567890123(ETB)
```



#### 4.4 PDF417

<b>AM[n]y;x;p:a;d;s;rw;rh;ec;z;dp;c;r</b>	
A	identification for mask set
M	identification for protocol version
n	Field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 50 = PDF417
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
s	symbol size
rw	relation width
rh	relation height
ec	error correction level 0 - ECC Level = 0 1 - ECC Level = 2 2 - ECC Level = 6 3 - ECC Level = 14 4 - ECC Level = 30 5 - ECC Level = 62 6 - ECC Level = 126 7 - ECC Level = 254 8 - ECC Level = 510
z	style 0 = standard 1 = truncated 2 = naked 3 = bare
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom
c	number of columns 0 = automatic, 1-30
r	number of rows 0 = automatic, 3-90

## 4.5 MAXICODE

<b>AM[n;y;x;p;a;d;0;sn;ns;m;0;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 51 = MAXICODE
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
0	dummy
sn	symbol number
ns	quantity of symbols
m	mode 2 = Structured Message (US Carrier) 3 = Structured Message (International Carrier) 4 = Default message
0	dummy
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.6 DataMatrix

<b>AM[n];y;x;p;a;d;s;aw;ah;ec;f;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 52 = DataMatrix
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
s	symbol size in 1/100 mm
aw	relation width
ah	relation height
ec	Error Correction 0 - ECC Type = 0    ECC Level = 0    Overhead = 0 % 1 - ECC Type = 2*    ECC Level = 40    Overhead = 33 % 2 - ECC Type = 3    ECC Level = 50    Overhead = 25 % 3 - ECC Type = 6    ECC Level = 80    Overhead = 33 % 4 - ECC Type = 8    ECC Level = 100    Overhead = 50 % 5 - ECC Type = 9*    ECC Level = 110    Overhead = 75 % 6 - ECC Type = 10*    ECC Level = 120    Overhead = 50 % 7 - ECC Type = 11*    ECC Level = 130    Overhead = 67 % 8 - ECC Type = 12    ECC Level = 140    Overhead = 75 % 9 - ECC Type = 26    ECC Level = 200    Overhead = 0 %
f	format ID of data 0 - Format ID = 11 (numeric, 2000 characters)* 1 - Format ID = 1 (numeric, 500 characters) 2 - Format ID = 2 (alphabetical, 500 characters) 3 - Format ID = 3 (alphabetical + pointers, 500 characters) 4 - Format ID = 4 (alphanumeric, 500 characters) 5 - Format ID = 5 (7 Bit, 500 characters) 6 - Format ID = 6 (8 Bit, 500 characters) 7 - Format ID = 7 (pre-programmed, 500 characters)* 8 - Format ID = 12 (alphabetical, 2000 characters) 9 - Format ID = 14 (alphanumeric, 2000 characters)
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

\* not supported from printer

## 4.7 GS1 DataMatrix

<b>AM[n];y;x;p;a;d;s;aw;ah;ec;f;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 59 = GS1 DataMatrix
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
s	symbol size in 1/100 mm
aw	relation width
ah	relation height
ec	Error Correction 0 - ECC Type = 0    ECC Level = 0    Overhead = 0 % 1 - ECC Type = 2*    ECC Level = 40    Overhead = 33 % 2 - ECC Type = 3    ECC Level = 50    Overhead = 25 % 3 - ECC Type = 6    ECC Level = 80    Overhead = 33 % 4 - ECC Type = 8    ECC Level = 100    Overhead = 50 % 5 - ECC Type = 9*    ECC Level = 110    Overhead = 75 % 6 - ECC Type = 10*    ECC Level = 120    Overhead = 50 % 7 - ECC Type = 11*    ECC Level = 130    Overhead = 67 % 8 - ECC Type = 12    ECC Level = 140    Overhead = 75 % 9 - ECC Type = 26    ECC Level = 200    Overhead = 0 %
f	format ID of data 0 - Format ID = 11 (numeric, 2000 characters)* 1 - Format ID = 1 (numeric, 500 characters) 2 - Format ID = 2 (alphabetical, 500 characters) 3 - Format ID = 3 (alphabetical + pointers, 500 characters) 4 - Format ID = 4 (alphanumeric, 500 characters) 5 - Format ID = 5 (7 Bit, 500 characters) 6 - Format ID = 6 (8 Bit, 500 characters) 7 - Format ID = 7 (pre-programmed, 500 characters)* 8 - Format ID = 12 (alphabetical, 2000 characters) 9 - Format ID = 14 (alphanumeric, 2000 characters)
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

\* not supported from printer



## 4.8 CODABLOCK F

<b>AM[n]y;x;p;a;d;h;nc;nl;m;s;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = printout 1 = np printout
a	identification for field type 53 = CODABLOCK F
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
h	line height in symbol
nc	quantity of characters/line
nl	quantity of lines
m	mode
s	module size
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.9 GS1 DataBar (RSS Code)

<b>AM[n]y;x;p;a;d;s;m;k;t;0;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 54 = GS1 DataBar (RSS)
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
s	number of segments per line [2..22]
m	module width [1 ...12]
k	separator height [1,2]
t	symbol type 1 = GS1 DataBar Omnidirectional (RSS-14) 2 = GS1 DataBar Truncated (RSS-14 Truncated) 3 = GS1 DataBar Stacked (RSS-14 Stacked) 4 = GS1 DataBar Stacked Omnidirectional (RSS-14 Stacked Omnidirectional) 5 = GS1 DataBar Limited (RSS Limited) 6 = GS1 DataBar Expanded (RSS Expanded)
0	not used
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.10 QR Code

<b>AM[n]y;x;p;a;d;mo;cs;ms;cw;ec;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 57 = QR Code
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
mo	code model 1 = Code Model 1 2 = Code Model 2
cs	character set N = numeric A = alphanumeric B = 8-bit byte K = kanji
ms	masking -1 = auto 0-7 = mask x 8 = no masking
cw	line width in 1/100 mm per module possible values: 0-800
ec	error correction (restoring capacity) L = 7 % M = 15 % Q = 25 % H = 30 %
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.11 Aztec Code

<b>AM[n]y;x;p;a;d;h;f;ec;m;0;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 61 = Aztec Code
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
h	symbol size in 1/100 mm (max 1 cm)
f	format <div> <div> 0 = Auto 1 = C15xC15 Compact 2 = C19xC19 Compact 3 = C23xC23 Compact 4 = C27xC27 Compact 5 = C19xC19 6 = C23xC23 7 = C27xC27 8 = C31xC31 9 = C37xC37 10 = C41xC41 11 = C45xC45 12 = C49xC49 13 = C53xC53 14 = C57xC57 15 = C61xC61 16 = C67xC67 17 = C71xC71 18 = C75xC75 </div> <div> 19 = C79xC79 20 = C83xC83 21 = C87xC87 22 = C91xC91 23 = C95xC95 24 = C101xC101 25 = C105xC105 26 = C109xC109 27 = C113xC113 28 = C117xC117 29 = C121xC121 30 = C125xC125 31 = C131xC131 32 = C135xC135 33 = C139xC139 34 = C143xC143 35 = C147xC147 36 = C151xC151 </div> </div>
ec	error correction (only if format = 0) 1 = 10 % 2 = 23 % 3 = 36 % 4 = 50 %
m	mode 0 = data 1 = runes (figures 0-255) 2 = Unicode (8 Bit ASCII) 3 = GS1 (not yet available)
0	dummy
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.12 Rectangle

<b>AM[n]y;x;p;a;h;b;s;m;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 10 = rectangle
h	rectangle height in 1/100 mm
b	rectangle height in 1/100 mm
s	line width in 1/100 mm
m	line type; 1 digit
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 4.13 Line

<b>AM[n]y;x;p;a;d;l;s;m;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = printout 1 = no printout
a	identification for field type 11 = line
d	rotation 0 = horizontal 1 = vertical
l	length in 1/100 mm
s	line width in 1/100 mm
m	line type; 1 digit
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

#### 4.14 Internal Graphic

<b>AM[n]y;x;p;a;d;dy;dx;dp</b>	
A	identification for mask set
M	identification for protocol version
n	field number
y	Y position in 1/100 mm
x	X position in 1/100 mm
p	identification for phantom field 0 = print 1 = no print
a	identification for field type 3 = internal graphic
d	rotation 0 = 0° 1 = 90° 2 = 180° 3 = 270°
dy	rotation in direction Y
dx	rotation in direction X
dp	datum point 1 = left top 2 = centre top 3 = right top 4 = left centre 5 = centre centre 6 = right centre 7 = left bottom (default) 8 = centre bottom 9 = right bottom

## 5 Text Set

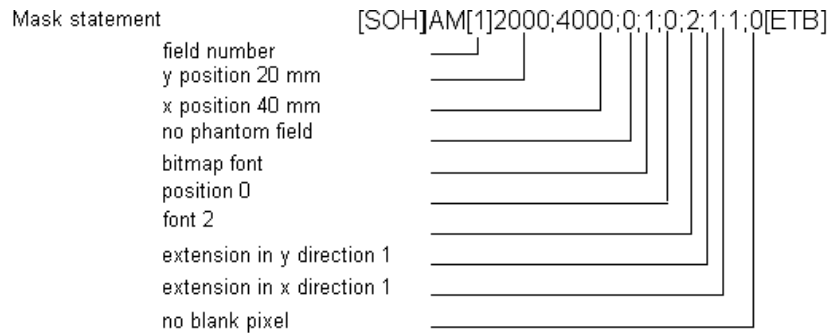
BM[n]text	
B	identification for text set
M	identification for extended protocol
n	field number
text	data contents, text

BV[n]text	
B	identification for text set
V	identification for selection by field name
n	field name
text	data contents, text

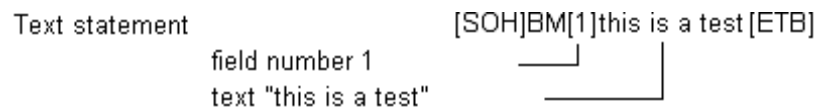
BF[n]text	
B	identification for text set
F	identification for selection by free definable field number
n	field number
text	data contents, text

## 5.1 Examples

### Mask set



### Texts set



### Text set with variable definition:

[SOH]BM[125]=CN(0,0,3,1,1)000[ETB]

### Example label

ASCII data	Identification
⊗AM[1]3600;4600;0;33;0;1500;0;4;1;1⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	mask set for bar code
⊗BM[1]444444444444⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	appropriate text set
⊗AM[2]600;4700;0;4;0;1;300;200;24⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	five mask sets vector font / proportional font
⊗AM[3]600;3100;0;4;0;1;400;300;24⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗AM[4]1100;4700;0;4;0;1;400;300;24⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗AM[5]1800;4700;0;4;0;1;300;200;24⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗AM[6]1900;3700;0;4;0;1;600;400;24⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗BM[2]Art.Nr. ⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	five appropriate text sets
⊗BM[3]44444⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗BM[4]Artikelbezeichnung⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗BM[5]EUR⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗BM[6]99,-- ⊕ <sup>C<sub>R</sub></sup> <sup>L<sub>F</sub></sup>	
⊗FBA000r06000000⊕	number of lines
⊗FBBA00r00001000⊕	number of items
⊗FBC000r00000000⊕	start

# : graphic data in PCX format  
 ⊗: SOH (1<sub>hex</sub> bzw 5E<sub>hex</sub>)  
 ⊕: ETB (17<sub>hex</sub> bzw. 5F<sub>hex</sub>)  
<sup>C<sub>R</sub></sup>: CarriageReturn (0D<sub>hex</sub>)  
<sup>L<sub>F</sub></sup>: LineFeed (0A<sub>hex</sub>)



## 6 Graphic Set

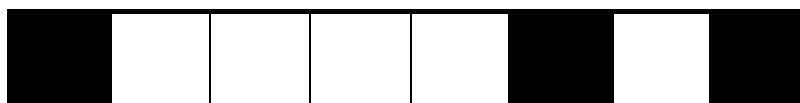
### 6.1 General Graphic Format

This format is supported by all our printers but note that a 8 bit transmission is absolute necessary.

SOH	D	p	p	p	p	lb	lb	lb	b	b	b	gb.....	ETB
-----	---	---	---	---	---	----	----	----	---	---	---	---------	-----

			min.	max.
<b>D</b>	=	identification for graphic set		
<b>p</b>	=	pixel line from above	'0000'	'1900'
<b>lb</b>	=	1. byte from left	'000'	'100'
<b>b</b>	=	quantity of bytes	'1'	'100'
<b>gb</b>	=	graphic bytes		

Graphic byte



1 graphic bit = 0,083 x 0,083 mm

### 6.2 Graphic in PCX Format

It is possible to transfer graphic data as a PCX-file (e.g. PaintBrush) to the printer. With this type of data transfer the PCX-file is transferred in a compressed form. Hereby the RLE-procedure is used and therefore the graphic data were reduced by approx. 30 %. This means that the effective transferring time for 300 dpi printers is cut in halves.

To set the printer ready for receiving PCX-data the protocol has to be switched over and hereby the following command set will be defined:

SOH	A	X	n	n	n	y	y	y	y	y	x	x	x	x	x	m	dp	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	-----

<b>n</b>	Index of transferred graphic to printer internal maintenance at present not processed (000)		
<b>y</b>	Y coordinate of graphic in 1/100 mm		
<b>x</b>	X coordinate of graphic in 1/100 mm		
<b>m</b>	Mode 0 = standard (background is overwritten) Mode 1 = transparency (background is maintained) Mode 2 = inverse (background is overwritten) Mode 3 = inverse transparency (background is maintained)		
<b>dp</b>	datum point 1 = left top                      2 = centre top                      3 = right top 4 = left centre                      5 = centre centre                      6 = right centre 7 = left bottom (default)                      8 = centre bottom                      9 = right bottom		

- It is recommended to observe that directly after the final sign (ETB) no separator res. fill character such as  $C_R L_F$  is indicated.
- The printer supports the following PCX versions: 5, 3, 2 and 0.
- It is necessary that the corresponding PCX-file is available as monochrome (black/white).
- The graphic has to be available in the original size as the printer is not able to change the size by itself.

**NOTICE!**

Before print start, indicated by parameter set 'FBC', the definition of field number, lines and pieces has to be effected via the parameter sets (FBA res. FBB).

### 6.3 Example PCX File

-\*\*\* PCX\_GRAPHIC-INFO \*\*\*-

⊗AX0010015300100941⊕#####	
⊗AM[1]3600;4600;0;33;0;1500;0;4;1;1⊕ $C_R L_F$	mask set for bar code
⊗BM[1]444444444444⊕ $C_R L_F$	appropriate text set
⊗AM[2]600;4700;0;4;0;1;300;200;24⊕ $C_R L_F$ ⊗AM[3]600;3100;0;4;0;1;400;300;24⊕ $C_R L_F$ ⊗AM[4]1100;4700;0;4;0;1;400;300;24⊕ $C_R L_F$ ⊗AM[5]1800;4700;0;4;0;1;300;200;24⊕ $C_R L_F$ ⊗AM[6]1900;3700;0;4;0;1;600;400;24⊕ $C_R L_F$	five mask set vector font / proportional font
⊗BM[2]Art.Nr. ⊕ $C_R L_F$ ⊗BM[3]44444⊕ $C_R L_F$ ⊗BM[4]Artikelbezeichnung⊕ $C_R L_F$ ⊗BM[5]EUR⊕ $C_R L_F$ ⊗BM[6]99,-- ⊕ $C_R L_F$	five appropriate text sets
⊗FBA00r06000000⊕	set number of lines (FBA...)
⊗FBBA00r00001000⊕	set quantity (FBBA..)
⊗FBC000r00000000⊕	start print order (FBC...)

# : Grafikdaten im PCX Format  
⊗: SOH (1<sub>hex</sub> bzw 5E<sub>hex</sub>)  
⊕: ETB (17<sub>hex</sub> bzw. 5F<sub>hex</sub>)  
 $C_R$ : CarriageReturn (0D<sub>hex</sub>)  
 $L_F$ : LineFeed (0A<sub>hex</sub>)

## 7 Variables

### 7.1 Set Structure

SOH	BM	[n]	=	v	v	(	p1	p2	p..	pn	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	----	----	-----	----	---	----	----	-----	-----	-----

= start of function  
 vv variable type  
     SC link field  
     CN counter  
     CC extended counter  
     CL date/time  
     CU currency variable  
     SH shift variable  
     MD memory card data  
 ( start of variable parameter block  
 p1...pn variable parameter  
 ) end of variable parameter block



#### NOTICE!

In case you want to print a text which corresponds exactly to the variable definition then you have to place '!' before.

SOH	BM	[n]	!	=	v	v	(	p1	p2	p..	pn	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	---	----	----	-----	----	---	----	----	-----	-----	-----

### 7.2 Link Field

SOH	BM	[n]	=	S	C	(	p1	;	p2	;	p..	;	pn	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	----	---	----	---	-----	---	----	---	----	----	-----	-----	-----

= SC identification of link field  
 p1...pn identification of link elements (field number or constant text)  
     field number is entered without leading '0'  
     constant text is included in " but these marks are not printed



#### NOTICE!

Reference fields can be constant text or variables but no link fields.

#### Example

=SC(1;2;3) --> Printout: Field1Field2Field3

=SC(1;"constant";2) --> Printout: Field1constantField2

### 7.3 Counter

SOH	BM	[n]	=	C	N	(	t	;	m	;	c	;	+/-	s	;	i	;	h	;	r	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	---	---	---	---	---	---	-----	---	---	---	---	---	---	---	---	----	----	-----	-----	-----

= CN	identification counter
t	type of counter
0	numerical
1	letters only
2...36	radix, base of the counter
m	function mode
0	standard
1	return to start value
2	enter the start value at the beginning of printing (default = existing start value)
3	enter the start value at the beginning of printing (default = last final number)
4	reset start value at cycle end (only for DPM IIIi)
5	reset start value by I/O signal
6	time-controlled resetting
7	time-controlled resetting with input of initial value (default = last final value)
c	digit where the numbering starts counting
+/-	direction
+	adding
-	subtracting
s	step width
i	update interval (number of labels with identical number)
h	time by which the counter is reset (function mode 6 and 7) in format 'HH:MM' e.g. 00:00 = reset counter at 0:00 (optional, only for function mode 6 and 7)
r	reset value (optional, only for function mode 6 and 7; default = text and/or initial value)
<b>Limitation:</b> The time-controlled resetting of counter variable is only effected in case of an active print order. If a print order is cancelled before the specified time and afterwards again restarted then no resetting of counter value is effected.	
t1, t2, ...	text res. start value of counter

#### Example:

Input: =CN(10;7;4;+1;1;06:00;0001)1234

The enquiry for the initial value is effected at print start and  
at 6:00 the counter variable is reset to value 0001.

## 7.4 Extended Counter

SOH	BM	[n]	=	C	C	(	+/-	s	;	i	;	m	;	z	;	n	;	x	)	t	ETB
-----	----	-----	---	---	---	---	-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

= CC	identification of numeric counter
+/-	direction
+	counter adding
-	counter subtracting
s	step width
i	update interval (number of labels with identical number)
m	function mode
0	standard
1	return to start value
2	enter the start value at the beginning of printing (default = existing start value)
3	enter the start value at the beginning of printing (default = last final number)
4	reset start value at cycle end (only for DPM IIIi)
5	set min. / max. value
6	set start value
7	print end
z	leading zeros
0	no leading zeros
1	printout with leading zeros
n	minimum value (max. -999999999)
x	maximum value (max. 999999999)
t	start value (the number of digits determines the format for the printout with leading zeros (max. 999999999)

### Example:

Input: =CC(+1;2;5;0;1,999)0050

Printout: 50, 51,...999, 1, 2, ...

## 7.5 Date and Time

```
SOHBM[n]=CL(m;d;i;n;c;mo;pd;pm;md;mm;rw;ws)t1t..t70ETB
```

= CL identification date/time

m month offset to the actual date  
(negative value/entry possible)

d day offset to the actual date

i update interval  
(0 = at the beginning of a print order, 1 = each label)

### Optional parameters

n minute offset to the actual time  
(negative entry/value possible)

c correction month overflow  
(0 = change to the next month, 1 = remain in current month)

### Optional parameters for BBE date

mo input mode

0: standard; display current date of real time clock

1: display calculated date, modification possible

2: display calculated date, no modification possible

pd max. positive correction days

pm max. positive correction months

md max. negative correction days

mm max. negative correction months

### Optional parameters for rounded date

rw rounded weekday: 1 = Sunday ... 7 = Saturday; 0 = no rounding

ws start of week, format: "D-HH:MM",  
e.g. 1-00:00 = Sunday, 0:00 Uhr

### Example

Actual date as per Real Time Clock: 08.12.

Input: =CL(0;0;0)<DD.MO.> Printout: 08.12.

Input: =CL(2;1;0)<DD.MO.> Printout: 09.02.

### Example for BBE date

Input: =CL (0;0;0;0;0;1;3;2;3;2)<DD.MO.>

At print start the calculated date is displayed at the printer and can be modified (+/- 3 days and +/- 2 months):

Display: ID\_1 DD:MO:YY  
08.12.11

### Example for rounded date

The beginning of the week is on Sunday (08.12.) at 00:00. The date of Monday should be printed the whole week.

Input: =C (0;0;0;0;0;0;0;0;0;0;2;1-00:00)<DD.MO.>

Current date	Rounded date
07.12. 23:59:59	02.12.
08.12. 00:00:00	09.12.
09.12.	09.12.
14.12. 23:59:59	09.12.
15.12. 00:00:00	16.12.

## 7.6 Format Identifier (Date & Time)

Standard format	
HH	Hours 2-digit (24 hours)
<b>HE</b>	<b>Hours 2-digit (12 hours)</b>
MI	Minutes 2-digit
SS	Seconds 2-digit
<b>AM</b>	<b>AM/PM output</b>
DD	Day 2-digit
MO	Month 2-digit
YYYY	Year 4-digit
YY	Year 2-digit
Y	Year 1-digit
WW	Calendar week
DW	Day of week (Sunday = 0)
DW1	Day of week (Sunday = 1)
DwX	Day of week An arbitrary ASCII character can be used for x, from which it is counted consecutively.
DOWxxxxxx	Day of week - variable For x, any ASCII character can be used. The first 'x' denominates Sunday, the next denominates Monday and so on until Saturday For each weekday a character must be created
DOY	Day of year 3-digit (First January = 1)
DY	Day of year 3-digit (First January = 0)
Examples	
DD.MO.YY	22.01.10
MO/DD/YYYY	01/22/2010
YY-MO-DD	10-01-22
YYMODD	100122

The format identifier 'HE' and 'AM'/'am'/'Am' are supplemented. Therefore the output of hours in 12-hours mode is possible. By the additional output of format identifier 'AM' the output of time in american/english format is possible.

### Example

```
=CL(0;0;0;0)<HH:MI:SS>      --> 15:30:00
=CL(0;0;0;0)<HE:MI:SS>      --> 03:30:00
=CL(0;0;0;0)<HE:MI:SS AM>   --> 03:30:00 PM
=CL(0;0;0;0)<HE:MI:SS am>   --> 03:30:00 pm
=CL(0;0;0;0)<HE:MI:SS Am>   --> 03:30:00 p.m.
```

By separating the output of time and AM/PM output in 2 text fields, also the following output format is possible:

```
--> 03:30:00 pm
```

Extended format	
XMO	Name of month short
XSO	Name of month long
XSD	Weekday short
XLD	Weekday long
For X you can enter the country identification of desired language	
C = Canadian D = Danish E = English F = French G = German I = Italian N = Dutch O = Norwegian S = Spanish U = Finnish W = Swedish	
Examples:	
DD.EMO.YY	22.JAN.10
DD.ESO YYYY	22. January 2010
ELD,DD.GMO.YY	Friday, 22. JAN.10
ESD,DD.MO.YY	FR, 22.01.10

### Extended format - XMO

<b>C</b>	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE
<b>D</b>	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AUG	SEP	OKT	NOV	DEC
<b>E</b>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>F</b>	JAN	FEV	MAR	AVR	MAI	JUIN	JUIL	AOU	SEP	OCT	NOV	DEC
<b>G</b>	JAN	FEB	MRZ	APR	MAI	JUN	JUL	AUG	SEP	OKT	NOV	DEZ
<b>I</b>	GEN	FEB	MAR	APR	MAG	GIU	LUG	AGO	SET	OTT	NOV	DIC
<b>N</b>	JAN	FEB	MRT	APR	MEI	JUN	JUL	AUG	SEP	OKT	NOV	DEC
<b>O</b>	JAN	FEB	MAR	APR	MAI	JUN	JUL	AUG	SEP	OKT	NOV	DES
<b>S</b>	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC
<b>U</b>	TAM	HEL	MAA	HUH	TOU	KES	HEI	ELO	SYU	LOK	MAR	JOU
<b>W</b>	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AUG	SEP	OKT	NOV	DEC



**Extended format - XSO**

<b>C</b>	January	February	March	April	May	June
<b>D</b>	Januar	Februar	Marts	April	Maj	Juni
<b>E</b>	January	February	March	April	May	June
<b>F</b>	Janvier	Février	Mars	Avril	Mai	Juin
<b>G</b>	Januar	Februar	Maerz	April	Mai	Juni
<b>I</b>	Gennaio	Febbraio	Marzo	Aprile	Maggio	Giugno
<b>N</b>	Januari	Februari	Maart	April	Mei	Juni
<b>O</b>	Januar	Februar	Mars	April	Mai	Juni
<b>S</b>	Enero	Febrero	Marzo	Abril	Mayo	Junio
<b>U</b>	Tammikuu	Helmikuu	Maaliskuu	Huhtikuu	Toukokuu	Kesaekuu
<b>W</b>	Januari	Februari	Mars	April	Maj	Juni

<b>C</b>	July	August	September	October	November	December
<b>D</b>	Juli	August	September	Oktober	November	December
<b>E</b>	July	August	September	October	November	December
<b>F</b>	Juillet	Août	Septembre	Octobre	Novembre	Décembre
<b>G</b>	Juli	August	September	Oktober	November	Dezember
<b>I</b>	Luglio	Agosto	Settembre	Ottobre	Novembre	Dicembre
<b>N</b>	Juli	Augustus	September	Oktober	November	December
<b>O</b>	Juli	August	September	Oktober	November	Desember
<b>S</b>	Julio	Agosto	Septiembre	Octubre	Noviembre	Diciembre
<b>U</b>	Heinaekuu	Elokuu	Syyskuu	Lokakuu	Marraksuu	Joulukuu
<b>W</b>	Juli	Augusti	September	Oktober	November	December

**Extended format - XSD**

<b>C</b>	SUN	MON	TUE	WED	THU	FRI	SAT
<b>D</b>	SO	MA	TI	ON	TO	FR	LO
<b>E</b>	SUN	MON	TUE	WED	THU	FRI	SAT
<b>F</b>	DIM	LUN	MAR	MER	JEU	VEN	SAM
<b>G</b>	SO	MO	DI	MI	DO	FR	SA
<b>I</b>	DOM	LUN	MAR	MER	GIO	VEN	SAB
<b>N</b>	ZO	MA	DI	WO	DO	VR	ZA
<b>O</b>	SO	MA	TI	ON	TO	FR	LO
<b>S</b>	DOM	LUN	MAR	MIE	JUE	VIE	SAB
<b>U</b>	SU	MA	TI	KE	TO	PE	LA
<b>W</b>	SO	LA	TI	ON	TO	FR	LO

**Extended format - XLD**

<b>C</b>	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>D</b>	Søndag	Mandag	Tirsdag	Onsdag	Torsdag	Fredag	Lørdag
<b>E</b>	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>F</b>	Dimanche	Lundi	Mardi	Mercredi	Jeudi	Vendredi	Samedi
<b>G</b>	Sonntag	Montag	Dienstag	Mittwoch	Donnerstag	Freitag	Samstag
<b>I</b>	Domenica	Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato
<b>N</b>	Zondag	Maandag	Dinsdag	Woensdag	Donderdag	Vrijdag	Zaterdag
<b>O</b>	Søndag	Mandag	Tirsdag	Onsdag	Torsdag	Fredag	Lørdag
<b>S</b>	Domingo	Lunes	Martes	Miércoles	Jueves	Viernes	Sábado
<b>U</b>	Sunnuntai	Maanantai	Tiistai	Keski-viikko	Torstai	Perjantai	Lauantai
<b>W</b>	Söndag	Måndag	Tisdag	Onsdag	Torsdag	Fredag	Lördag

## 7.7 Currency Variable

SOH	BM	[n]	=	C	U	(	a	;	b	;	c	;	d	;	e	;	f	;	g	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	-----	-----	-----

= CU      Signification of variable Euro

a          ANSI-Code of thousand separator as decimal figure

b          ANSI-Code of comma separator as decimal figure

c          Quantity of numbers after the comma as decimal figure

d          Operand A          Before the processing the variable Euro

e          Operand B          calculates the term

f          Operand C           $\frac{A \times B}{C}$

g          Rounding format

t1, t2, ...      Format string, is indicated by "< >"

### Example:

In case the contents of field 20 has to be converted from USD into EUR the definition of variable for the user defined format is as follows:

B01      '=CU(46;44;2;20;"1,0";"0,68861";"0,01")Result: <>Euro'

B20      1.250,44 USD

**Printout:**                      1.250,44 USD

   Result:      1.815,89 Euro'

## 7.8 Shift Variable

SOH	BM	[n]	=	S	H	(	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	---	----	----	-----	-----	-----

= SH      identification of shift variable



## NOTICE!

The shift variable did not need any parameters. The settings for the output are defined with the corresponding parameter sets. (see above)

### Beispiel

The shift times are defined: 00:00 - 11:59 "Shift1"  
12:00 - 23:59 "Shift2"

```
=SH() Printout at 10:00 Uhr: "Shift1"
=SH() Printout at 13:00 Uhr: "Shift2"
```

## Set shift times

SOH	F	C	I	D	-	-	r	N	N	H	H	M	M	h	h	m	m	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NN = ID [01 ... 24]

HH = start hour

MM = start minute

### hh = end hour

mm = end minute

### Get shift variable

[illegible]

### Answer

SOH	A	N	N	H	H	M	M	h	h	m	m	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

## Set shift text

[illegible]

NN = ID [01 ... 24]

T = max. 10 characters

## Get shift variable

[illegible]

### Answer

[illegible]

## 7.9 User Guiding

SOH	BM	[n]	=	U	G	(	c	;	t	;	m	;	ap	;	ae	;	sp	)	t1	t2	t..	t70	ETB
-----	----	-----	---	---	---	---	---	---	---	---	---	---	----	---	----	---	----	---	----	----	-----	-----	-----

= UG    identification user guiding

c        start position for the entry

t        type of entry  
           0    numerical  
           1    alphanumerical

m        mode of entry  
           0    do not jump over special characters  
           1    jump over special characters

ap       alignment at printing  
           0    aligned to the right side

ae       alignment at entry  
           0    aligned to the right side

sp       prompt text for the variable, max. 24 characters  
           The entry has to be included in ".

### Example

Entry:        =UG(1;0;0;0;0;"Enter article no.")<123456>

Display:      Enter article no.  
                  123456

## 7.10 User Guiding with Mask

```
SOHBM[n]=UM(c;t;m;ap;ae;sp;d;ma)t1t2t..t70ETB
```

= UM	identification user guiding with mask
c	start position for the entry
t	type of entry (is ignored with existing mask definition) 0 numerical 1 alphanumerical
m	mode of entry (is ignored with existing mask definition) 0 do not jump over special characters 1 jump over special characters
ap	alignment at printing 0 aligned to the right side
ae	alignment at entry (always left aligned with existing mask definition) 0 right aligned 1 left aligned, cursor at the beginning of the text 2 left aligned, cursor at the start position 3 right aligned, remove fill characters 4 left aligned, cursor at the beginning of the text, remove fill characters 5 left aligned, cursor at the start position, remove fill characters
sp	prompt text for the variable, max. 24 characters The entry has to be included in ".
d	deleting setpoint value 0 setpoint value remains at key entry (inserting mode) 1 with first key press the setpoint value disappears 2 setpoint value is retained (overwrite mode)
ma	definition of mask possible mask characters are 9 numbers only # only numbers and leading signs ? letters only a alphanumeric characters (letters and numbers) C any characters

### Example

Entry: =UM(1;0;0;0;0;"Enter article no.";0;"999-aa")<123-xx>

Display: Enter article no.  
123-xx

## 7.11 Memory Card Data

```
SOHBM[n]=MD(FN="filename";SE='x';CH=x;SC="x";SF="x";RC="x")ETB
```

= MD	identification of memory card data
FN	file name of table onto memory card with CSV data
SE	Separator sign (default = ';')
CH	column name in the first line (0 = no, 1 = yes)
SC	name and/or number of column that should be referenced
SF	field name and/or field index of field onto the label, which contains the searched data
RC	name and/or number of column, which contains the data to be printed



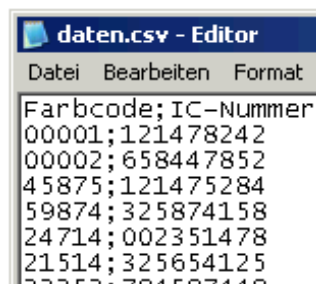
### NOTICE!

If in parameter SF a field name is indicated, this must have been defined for the appropriate field by an AC attribute statement!

### Example

```
AC[1]NAME="FCODE"
BM[2]=MD(FN="a:\daten.csv";SE=';';CH=1;SC="Farbcode";SF="FCODE";
RC="IC-Nummer")
```

Field 1	Output Field 2
00001	121478242
23252	784587448



## 7.12 GS1-128 Parser



### NOTICE!

By means of this variable type, the content of an application identifier in a GS1-128 bar code can be determined.

```
SOHBM[n]=AI(p;Ai)ETB
```

= AI	identification of GS1-128 parser
p	identification of the link element (field number)
Ai	application identifier

### Example

```
Field 1="00123456789012345675"    GS1-128 with AI00
=AI(1;"00")                        Printout: 123456789012345675
```

### 7.13 EPC Calculation (Electronic Product Code)\*

SOH BM [n] = E P C ( M ; L ; F ; P ; N1 ; {N2} ) ETB

= EPC identification of EPC calculation  
 M coding method  
 L length of manufacturer number (company prefix)  
 F filter value  
 P verification of check digit  
 N1 identification of link element (field number)  
 N2 identification of link element (field number) - optional

For more information, visit the following web sites:

www.epcglobalinc.org or [www.gs1.org](http://www.gs1.org)

Param.	Value range		
M	0 = coding method SSCC96		3 = coding method GRAI96
	1 = coding method SGTIN96		4 = coding method GIAI96
	2 = coding method SGLN96		
L	6...12		
F	<b>Coding</b>	<b>Filter value</b>	<b>Binary</b>
	SSCC96	All Others	000
		Undefined	001
		Logistical / Shipping Unit	010
	SGTIN96	All Others	000
		Retail Consumer Trade Item	001
		Standard Trade Item Grouping	010
		Single Shipping/ Consumer Trade Item	011
	SGLN	All Others	000
		Physical Location	001
	GRAI	All Others	000
	GIAI	All Others	000
P	0 = no verification; 1 = verification		
N1, N2	any		

#### Example 1

Field 1 ="00123456789012345675" GS1-128 with AI00  
 Field 2 =AI (1;"00") --> Printout: 123456789012345675  
 Field 3 =EPC(0;12;0;1;2) --> Printout: 3100DA7557D32C38E7000000  
 The EPC is calculated with the content of Field 2. The coding method SSCC96 is used. In Field 2 a valid NVE must be represented (18-digit, correct check digit).

#### Example 2

Field 1 ="4141234567890128254123" GS1-128 with AI00, AI254  
 Field 2 =AI (1;"414") --> Printout: 1234567890128  
 Field 3 =AI (1;"254") --> Printout: 123  
 Field 4 =EPC(2;10;0;0;2;3) --> Printout: 3208499602D218000000007B  
 The EPC is calculated with the content of Field 2 and Field 3. The coding method SGLN96 is used. In Field 2 a valid ILN must be represented (13-digit). In the example, Field 3 contains an optional serial number. No verification of check digit of ILN (8) is effected.

\* only when using option RFID

## 7.14 Check Digit

SOH	BM	[n]	=	C	D	(	d	;	s	;	l	;	t	;	w	;	m	;	r	;	o	)	t1	t..	t70	ETB
-----	----	-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	-----	-----	-----

- = CD Identification of check digit
- d Data for check digit calculation (field number of constant text)  
Constant text is enclosed in "".
- s Start position within data  
1 ...n Start calculation at digit x
- l Number of digits. If the parameter is not indicated, the remaining data (from start position) is used for the check digit calculation.
- t Check digit type
- |   |                          |
|---|--------------------------|
| 0 | Modulo 10 (weighting 3)  |
| 1 | Modulo 11                |
| 2 | Modulo 43                |
| 3 | Modulo 47 (weighting 15) |
| 4 | Modulo 47 (weighting 20) |
| 5 | Modulo 103               |
| 6 | Customized               |

### Optional parameters for customized check digit

- w Weighting.  
Constant text enclosed in "" - contains the individual weighting values or an interval.  
Individual values: "x<sub>1</sub>,x<sub>2</sub>"  
Interval: "x<sub>1</sub>...x<sub>2</sub>"
- m Modulo
- r Add result to
- o Print only one digit
- |   |     |
|---|-----|
| 0 | No  |
| 1 | Yes |

### Example

Entry: =CD("123456789012";0;0;0)  
Printout: 8

Entry: =CD("1234567890";0;0;6;"1,3";10;10;1)  
Printout: 5



## 7.15 Substring

SOH	BM	[n]	=	S	S	(	d	;	s	;	l	)	ETB
-----	----	-----	---	---	---	---	---	---	---	---	---	---	-----

= SS Identification of substring

d Data used for substring extraction (field number or field name or constant text.  
Constant text is enclosed in "".

s Start position within data. If this parameter is omitted, the substring extraction starts with the 1st character of the data string.  
1 n Start at digit x

l Number of digits. If this parameter is omitted, all characters from the start position to the end of the data string are returned.  
1 ...n At the start position x digits

### Example:

Entry: =SS("1234567890";4;3)

Printout: 456

Field "ARTIKELNR" has the contents "370012330295"

Entry: =SS(ARTIKELNR;1;4)

Printout: 3700



## 8 Parameter Sets

### 8.1 Label Parameters

#### Set label photocell type

SOH	F	C	D	E	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = transmission photocell normal

N: 1 = reflection photocell

N: 2 = transmission photocell inverse

N: 3 = reflection photocell inverse

#### Get label photocell type

SOH	F	C	D	E	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Set label type

SOH	F	C	D	A	-	-	r	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = change to adhesive labels (automatically measure process)

N: 1 = change to continuous labels

#### Get label type

SOH	F	C	D	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Measure label

In case of loading a new label roll it is possible to start measuring by this command.

SOH	F	C	B	-	-	-	r	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

The current label and gap length in the printer can be sent to the Host computer:

SOH	F	C	B	-	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

After this command the printer sends the following answer:

#### Answer

SOH	A	E	E	E	E	S	S	S	S	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

EEEE = label length in mm (ASCII)

SSSS = gap length in mm (ASCII)

**Set label length in 1/100 mm**

SOH	F	C	C	L	-	-	r	N	N	N	N	N	N	N	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = value of label length in 1/100 mm, 7 digit ASCII number

**Get label length in 1/100 mm**

SOH	F	C	C	L	-	-	w	N	N	N	N	N	N	N	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	N	N	N	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set gap length in 1/100 mm**

SOH	F	C	C	M	-	-	r	M	M	M	M	M	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

M = value of gap length in 1/100 mm, 5 digit ASCII number

**Get gap length in 1/100 mm**

SOH	F	C	C	M	-	-	w	M	M	M	M	M	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	M	M	M	M	M	M	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set label width in 1/100 mm**

SOH	F	C	C	O	-	-	r	N	N	N	N	N	N	N	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = indication of label width in 1/100 mm, 7 digit ASCII number

**Get label width in 1/100 mm**

SOH	F	C	C	O	-	-	w	P	P	P	P	P	P	P	P	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	N	N	N	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set label error length in mm**

SOH	F	C	D	G	A	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = indication of label error length in mm (1-999)

**Get label error length**

SOH	F	C	D	G	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set label synchronization**

SOH	F	C	D	G	B	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get label synchronization**

SOH	F	C	D	G	B	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set number of columns**

SOH	F	C	C	H	A	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = number of columns (1...9)

**Get number of columns**

SOH	F	C	C	H	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set column width**

SOH	F	C	C	H	B	-	r	N	N	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = indication of column width in 1/10 mm (0...999)

**Get column width**

SOH	F	C	C	H	B	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set label alignment**

SOH	F	C	C	J	-	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = left

N: 1 = centre

N: 2 = right

**Get label alignment**

SOH	F	C	C	J	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set contrast**

SOH	F	C	A	B	-	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN: indication of contrast in % (010...200)  
 necessary to transmit a 3 digit ASCII number.

**Get contrast**

SOH	F	C	A	B	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set flip label**

SOH	F	C	D	O	-	-	r	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = flip label Off

N: 1 = flip label On

**Get flip label**

SOH	F	C	D	O	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set rotate label**

SOH	F	C	D	N	-	-	r	X	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

X: 0 = rotate label Off

X: 1 = rotate label On

**Get rotate label**

SOH	F	C	D	N	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	X	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set mode flip/rotate label**

SOH	F	C	D	S	-	-	r	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = flip/rotate label at the centre point of label

N: 1 = flip/rotate label at the centre point of printhead

**Get mode flip/rotate label**

SOH	F	C	D	S	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set material selection**

SOH	F	C	D	N	C	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN: indication of material

0 = type 1

1 = type 2

**Get material selection**

SOH	F	C	D	N	C	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set rotate label in 90 degrees**

SOH	F	C	D	N	D	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = 0°

N: 1 = 90°

N: 2 = 180°

N: 3 = 270°

**Get rotate label in 90 degrees**

SOH	F	C	D	N	D	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set scan position**

SOH	F	C	D	E	A	-	r	N	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NN = indication of scan position in % of the set label length (01 ... 99)  
value depends on the label length

**Get scan position**

SOH	F	C	D	E	A	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set sensitivity of transmission photocell**

SOH	F	C	D	E	B	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = indication of photocell sensitivity  
 3 digit ASCII number (001 ... 255)

**Get sensitivity of transmission photocell**

SOH	F	C	D	E	B	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set sensitivity of reflexion photocell**

SOH	F	C	D	E	C	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = indication of photocell sensitivity  
 NNN = 3 digit ASCII number (001 ... 255)

**Get sensitivity of reflexion photocell**

SOH	F	C	D	E	C	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----



## 8.2 Photocell

**Get minimal measured level at label photocell  
(label parameter A)**

SOH	F	C	M	A	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = value of measured level, 3 digit ASCII number in 1/100 V

**Get maximal measured level at label photocell  
(label parameter B)**

SOH	F	C	M	A	B	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = value of measured level, 3 digit ASCII number in 1/100 V

**Set switching threshold at label photocell (label parameter C)**

SOH	F	C	M	A	C	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = value of switching threshold, 3 digit ASCII number in 1/100 V  
value is automatically calculated at measuring process at  
printer ( $\min + \frac{\max - \min}{3}$ )

**Get switching threshold**

SOH	F	C	M	A	C	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = value at measured switching threshold  
3 digit ASCII number in 1/100 V

**Get current value at transfer ribbon photocell**

SOH	F	C	M	B	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = transfer ribbon inserted

N: 1 = no transfer ribbon

**Get current value at label photocell**

SOH	F	C	M	B	B	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN: value at label photocell, 3 digit ASCII number in 1/100 V

**Get status at dispenser photocell**

SOH	F	C	M	B	E	A	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = no label at photocell

N: 1 = label at photocell

Set switching threshold of dispenser photocell is taken into consideration.

### 8.3 Printer Parameters

#### Set print speed

SOH	F	C	A	A	-	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN: Indication of print speed in mm/s

Compa V 103/8 50 ... 300

Compa V 104/8 50 ... 300

Compa V 106/12 50 ... 300

Compa V 106/24 50 ... 150

Compa V 108/12 50 ... 300

Compa V 162/12 50 ... 250

It is necessary to transmit a 3-digit ASCII number

#### Get print speed

SOH	F	C	A	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Set transfer ribbon control On/Off

SOH	F	C	D	B	-	-	r	N	M	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 1 = transfer ribbon control On

N: 0 = transfer ribbon control Off

M: 0 = weak sensibility

M: 1 = strong sensibility

#### Get transfer ribbon On/Off

SOH	F	C	D	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	M	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Set field handling

SOH	F	C	D	K	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = field handling Off

N: 1 = graphic received

N: 2 = delete graphic

N: 3 = restore graphic

#### Get field handling

SOH	F	C	D	K	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set printer language**

SOH	F	C	D	I	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = German	N: 8 = Italian	N: 15 = not used
N: 1 = English	N: 9 = Danish	N: 16 = Ukrainian
N: 2 = French	N: 10 = Polish	N: 17 = Turkish
N: 3 = Spanish	N: 11 = Greek	N: 18 = Swedish
N: 4 = Finish	N: 12 = Hungarian	N: 19 = Norwegian
N: 5 = Czech	N: 13 = Russian	N: 20 = Estonian
N: 6 = Portuguese	N: 14 = Chinese	N: 21 = Romanian
N: 7 = Netherlands		

**Get printer language**

SOH	F	C	D	I	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set external printer parameters**

SOH	F	C	C	P	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = only parameter settings by interface for label length, gap length and label width are taken into consideration.  
 N: 1 = parameter settings by interface are processed  
 N: 2 = parameter settings by interface are not taken into consideration

**Get external printer parameters**

SOH	F	C	C	P	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set Codepage**

SOH	F	C	C	N	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Codepage 1252 West European (former ANSI)  
 N: 1 = Codepage 437 English  
 N: 2 = Codepage 850 Western European  
 N: 3 - 8 = not used  
 N: 9 = Codepage 852 Slavic  
 N: 10 = Codepage 857 Turkish  
 N: 11 = Codepage 1250 Central and East European  
 N: 12 = Codepage 1251 Cyrillic  
 N: 13 = Codepage 1253 Greek  
 N: 14 = Codepage 1254 Turkish  
 N: 15 = Codepage 1257 Baltic  
 N: 16 = WGL4 (UTF-8 coded data transmission)

Please find the tables referring to the above mentioned character sets on [www.carl-valentin.de/Downloads](http://www.carl-valentin.de/Downloads).

**Get Codepage**

SOH	F	C	C	N	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set customized entry**

SOH	F	C	D	U	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

- N: 0 = Off      No question appears at the display. In this case the stored default value is printed.
- N: 1 = On        The question referring the customized variable appears once before the print start at the display.
- N: 2 = Auto      The question referring the customized variable appears again after print end. Additionally a query appears demanding the number of copies that should be print.
- N: 3 = Auto      without quantity:  
The question referring the customized variable appears again after print end. However, the same number of copies is printed. This number was defined once at the start of the print order.

**Get customized entry**

SOH	F	C	D	U	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set keyboard layout**

SOH	F	C	C	K	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

- N: 0 = German
- N: 1 = English
- N: 2 = French
- N: 3 = Greek
- N: 4 = Spanish
- N: 5 = Swedish
- N: 6 = US American
- N: 7 = Russian

**Get keyboard layout**

SOH	F	C	C	K	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set sound level of key click (buzzer)**

SOH	F	C	C	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

- N: 0 =        buzzer Off
- N: 1-7 =     sound level of key click

**Get sound level of key click (buzzer)**

SOH	F	C	C	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set brightness of display (contrast)**

SOH	F	C	C	B	B	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = value range of display brightness 045 to 075

**Get display brightness**

SOH	F	C	C	B	B	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set hotstart On/Off**

SOH	F	C	D	W	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get hotstart On/Off**

SOH	F	C	D	W	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set autoloader**

SOH	F	C	D	X	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get autoloader**

SOH	F	C	D	X	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set standard label On/Off**

SOH	F	C	M	K	E	-	r	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off (default) - print start without label definition signalizes error

N: 1 = On - standard label is printed without label definition

**Get standard label On/Off**

SOH	F	C	M	K	E	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set backfeed operating mode**

SOH	F	C	M	R	A	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = standard

N: 1 = automatic

N: 2 = no backfeed

N: 3 = optimized

**Get backfeed operating mode**

SOH	F	C	M	R	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	P	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set backfeed delay**

SOH	F	C	M	R	B	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN: indication of delay time, 3 digit ASCII number in 1/100s

**Get backfeed delay**

SOH	F	C	M	R	B	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set label change confirmation**

SOH	F	C	S	D	F	C	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get label change confirmation**

SOH	F	C	S	D	F	C	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set label synchronization at switching on**

SOH	F	C	C	A	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = Measure

N: 2 = Label feed

**Get synchronization at switching on**

SOH	F	C	C	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set CMI length**

SOH	F	C	D	J	C	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN: value that the labels are retracted at a stop  
3 digit ASCII number in 1/100 mm (000 ... 100)

**Get CMI length**

SOH	F	C	D	J	C	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----



## 8.4 Interface

By means of the following commands the parameters of the serial interface can be set. Note that after sending one of the commands also the host computer changes the corresponding parameter of its interface to allow further communication of host computer-printer. For all interface commands the interface is fixed with x. The following values are allowed:

$x = 1 \Rightarrow \text{COM 1}$

$x = 2 \Rightarrow \text{COM 2}$

In all other cases automatically the first serial interface is addressed. In the answers the addressed interface is also returned.

### Set all interface parameters

SOH	F	C	F	F	x	-	r	m	;	b	;	p	;	d	;	s	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

m = mode (0 = Off, 1 = On, 2 = On, without error message)

b = baud rate (2400, 4800, 9600, 19200, 38400, 115200)

p = parity (n = no parity, e = even parity, o = odd parity)

d = number of data bits (7, 8)

s = number of stop bits (1, 2)

### Get all interface parameters

SOH	F	C	F	F	x	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	x	;	m	;	b	;	p	;	d	;	s	;	p	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Example:** activate interface COM1 and set 9600 Baud, no parity, 8 data bits, 2 stop bits

[SOH]FCFF1-r1;9600;n;8;2[ETB]

## Interface protocol

There are two different interface protocols available. Usually SOH = 01<sub>Hex</sub> and TB = 17<sub>Hex</sub>. However there are host computers (e.g. AS/400), which cannot work with these characters. Therefore you can switch SOH = 5E<sub>Hex</sub> and ETB = 5F<sub>Hex</sub>. The host computer has to change the corresponding parameter as well.

### Set SOH and ETB

SOH	F	C	G	C	-	-	r	N	-	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = SOH = 01<sub>Hex</sub>, ETB = 17<sub>Hex</sub>

N: 1 = SOH = 5E<sub>Hex</sub>, ETB = 5F<sub>Hex</sub>

### Get SOH and ETB

SOH	F	C	G	C	-	-	W	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = SOH = 01<sub>Hex</sub>, ETB = 17<sub>Hex</sub>

N: 1 = SOH = 5E<sub>Hex</sub>, ETB = 5F<sub>Hex</sub>

N: 2 = other character combination

## Data memory

### Set data memory

SOH	F	C	G	D	-	-	r	M	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

M: 0 = Off, after receiving FBCA0r or FBDA0r the interface is locked until the end of the print order, i.e. you cannot write more data in the receiving buffer.

M: 1 = Off, after receiving FBCA0r or FBDA0r the interface is locked until the end of the print order, i.e. you cannot write more data in the receiving buffer.

M: 2 = Extended, after starting a print order it is possible to write more data in the receiving buffer. These data is processed during the print and the next label is prepared.

### Get data memory

SOH	F	C	G	D	-	-	W	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	M	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set reaction to unknown interrogative set

SOH	F	C	G	E	A	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = value range between 0 and 3

### Get reaction to unknown questions

SOH	F	C	G	E	A	-	w	p	p	p	p	p	P	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

## 8.5 Network

SOH	F	C	L	A	-	-	r	C	0	A	8	0	0	1	5	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

All network parameter sets start in the third column with a 'L'. Column 4 shows the identification for the corresponding network parameter. Column 5 can show another sub-identification.

Because of the fact that the argument size is limited to 8 characters, the IP addresses (IP address, network mask, gateway address) which consist of 32 bit are transmitted in HEX presentation.

For all data which is transmitted in HEX presentation (also the MAC address) it is allowed to use capital as well as small letters.

In contrary to the parameter settings of the other interfaces, the settings of the following sets were saved immediately onto Flash, i.e. it is not necessary to save the currently set configuration before switching off the printer so the modifications are still available after switching on.

So that the made modifications become active, also without printer Reset it is necessary to transmit a corresponding Z set which effects a Reset of the network devices.

### Set IP address (e.g. 192.168.0.21)

SOH	F	C	L	A	-	-	r	C	0	A	8	0	0	1	5	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Get IP address

SOH	F	C	L	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	C	0	A	8	0	0	1	5	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set netmask (e.g. 255.255.255.0)

SOH	F	C	L	B	-	-	r	F	F	F	F	F	F	0	0	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Get netmask

SOH	F	C	L	B	-	-	w	F	F	F	F	F	F	0	0	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	F	F	F	F	F	0	0	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set Gateway address (e.g. 192.168.0.1)

SOH	F	C	L	C	-	-	r	C	0	A	8	0	0	0	1	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Get Gateway address

SOH	F	C	L	C	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	C	0	A	8	0	0	0	1	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set transmission mode (e.g. auto recognition)**

SOH F C L D - - r 0 - - - - - ETB

0 = auto recognition

3 = 100 MBit/s half duplex

1 = 10 MBit/s half duplex

4 = 100 MBit/s full duplex

2 = 10 MBit/s full duplex

**Get transmission mode**

SOH F C L D - - w 0 - - - - - ETB

**Answer**

SOH A 0 - - - - - p p p p p p p p ETB

**Set DHCP support**

SOH F C L E - - r N ETB

N: 0 = Off

N: 1 = On

**Get DHCP support**

SOH F C L E - - w p p p p p p p p ETB

**Answer**

SOH A N - - - - - p p p p p p p p ETB

**Assign printer name**

SOH F C L F - - R N N N N N N N N N N N ETB

N = printer name can consist of max. 11 characters

N = [A ... Z, a ... z, 0 ... 9, -, -]

**Get printer name**

SOH F C L F - - w p p p p p p p p ETB

**Answer**

SOH A N N N N N N N N ; p p p p p p p p ETB

**Set MAC address (e.g. 00-07-4A-43-19-08)**

SOH F C L M B - r 0 0 0 7 4 A - - ETB

SOH F C L M A - r 4 3 1 9 0 8 - - ETB

SOH F C L M C - r 0 0 0 7 4 A 1 9 0 8 ETB

A MAC address has a width of 48 bit and is normally indicated in hexadecimal.

With the B record our identifier of the MAC address can be changed. All our machines start with 00-07-4A as default. This corresponds to the Memory-Pool which the MAC address committee assigned to us to guarantee that the MAC address is world-wide manufacturer-spreading unique.

With the A record any address can be set in our pool.

With the C record any address in our pool and the identification of the MAC address can be set/changed at the same time.

#### Get MAC address

SOH	F	C	L	M	B	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

SOH	F	C	L	M	A	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

SOH	F	C	L	M	C	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	0	0	0	7	4	A	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

SOH	A	4	3	1	9	0	8	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

SOH	A	0	0	0	7	4	A	4	3	1	9	0	8	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### NTP Server

NTP (Network Time Protocol) is a standardized Internet protocol permitting the synchronization of real-time clocks of network participants. The printer connects itself with a time server and align every 60 minutes its internal real-time clock with that of the time server in order to correct possible differences.

The address of server (IP address) can be freely configured in the printer. The communication is effected by UDP and the fixed set port 123. The service in the printer is deactivated by transmitting the server address 0.0.0.0.

The time servers work together with the coordinated world time (UTC) and therefore an additional time shift is needed compared to the reference time. For Germany it is e.g. +1 hour.

The current state of the connexion can be queried with a status set.

#### Set NTP Server IP

SOH	F	C	L	N	I	-	r	N	ETB
-----	---	---	---	---	---	---	---	---	-----

N = X.X.X.X (X = 0 ... 255)

#### Get NTP Server IP

SOH	F	C	L	N	I	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	N	N	N	N	N	N	N	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

0.0.0.0 deactivates the NTP service

**Readout NTP status**

SOH	F	C	L	N	S	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = OK

N: 2 = Error

**Set time zone (hour offset)**

SOH	F	C	L	N	Z	-	r	N	ETB
-----	---	---	---	---	---	---	---	---	-----

N: -12, 12

**Get time zone (hour offset)**

SOH	F	C	L	N	Z	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	N	N	N	N	N	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Reset Network Device**

SOH	F	C	L	Z	-	-	r	-----	ETB
-----	---	---	---	---	---	---	---	-------	-----

For this set is no enquiry possible. This set causes that modifications made by the transfer of the previous sets become effective.

## 8.6 Offset Values

### Set Y offset

SOH	F	C	C	D	-	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = offset prefix (+ or -)

NNN = offset value, 3 digit ASCII number in 1/10 mm

### Get Y offset

SOH	F	C	C	D	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set X offset

SOH	F	C	C	E	-	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = offset prefix (+ or -)

NNN = offset value, 3 digit ASCII number in 1/10 mm

### Get X offset

SOH	F	C	C	E	-	-	w	p	P	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set tear-off offset

SOH	F	C	C	G	-	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = offset prefix (always +)

NNN = offset value, 3 digit ASCII number in 1/10 mm

### Get tear off offset

SOH	F	C	C	G	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set cutter offset**

SOH	F	C	S	C	A	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = offset prefix (always +)

NNN = offset value, 3 digit ASCII number in 1/10 mm

**Get cutter offset**

SOH	F	C	S	C	A	-	w	p	P	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	p	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set dispenser offset**

SOH	F	C	S	D	A	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = offset prefix (always +)

NNN = offset value, 3 digit ASCII number in 1/10 mm

**Get dispenser offset**

SOH	F	C	S	D	A	-	w	P	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----



## 8.7 Service Functions

### Set zero point adjustment (Y value)

SOH	F	C	C	R	-	-	r	V	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Get zero point adjustment (Y value)

SOH	F	C	C	R	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V: offset prefix (+ or -)

NNN: offset value

3 digit ASCII number in 1/100 mm (-999 ... +999)

### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set zero point adjustment (X value)

SOH	F	C	C	T	-	-	r	V	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Get zero point adjustment (X value)

SOH	F	C	C	T	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V: offset prefix (+ or -)

NNN: offset value

NNN: 3 digit ASCII number in 1/100 mm (-999 ... +999)

### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set Online / Offline

SOH	F	C	M	K	C	-	r	M	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

M: 0 = Offline Off

M: 1 = Offline On

### Get Online / Offline

SOH	F	C	M	K	C	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	M	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

After changing by interface the display is automatically new initialized (by activated online/offline changing to online indication).

**Set reprint action**

SOH	F	C	M	K	D	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Get reprint action**

SOH	F	C	M	K	D	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = complete reprint

N: 1 = empty reprint

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set winder output**

SOH	F	C	M	P	-	-	r	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get winder output**

SOH	R	C	M	P	-	-	W	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Get status of printhead locking**

SOH	F	C	M	C	A	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	P	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = locking open

N: 1 = locking closed

**Get printhead temperature**

SOH	F	C	M	C	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = value of temperature, 3 digit ASCII number in degrees

**Set transfer ribbon prior warning**

SOH	F	C	M	L	A	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get transfer ribbon prior warning**

SOH	F	C	M	L	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	P	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set diameter for transfer ribbon prior warning**

SOH	F	C	M	L	B	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = 030 ... 090 diameter in mm

**Get transfer ribbon prior warning**

SOH	F	C	M	L	B	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Get current transfer ribbon diameter**

SOH	F	C	M	L	C	-	w	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set mode for transfer ribbon prior warning**

SOH	F	C	M	L	D	A	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Warning

N: 1 = Reduced speed

N: 2 = Error

**Get mode for transfer ribbon prior warning**

SOH	F	C	M	L	D	A	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set reduced speed (ribbon prior warning)**

SOH	F	C	M	L	D	B	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN =  $V_{\min}$  ...  $V_{\max}$ : reduced print speed  
(depending on printer type)

**Get reduced speed (ribbon prior warning)**

SOH	F	C	M	L	D	B	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set printhead resistance**

SOH	F	C	M	G	-	-	r	N	N	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNNN = value of resistance in Ohm.

**Get printhead resistance**

SOH	F	C	M	G	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	N	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set print length correction**

SOH	F	C	M	T	-	-	r	V	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V: offset prefix (+ or -)

NNN: print length correction value

3 digit ASCII number in 1/10 % (-100 ... +100)

**Get print length correction**

SOH	F	C	M	T	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	V	N	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set custom logo**

SOH	F	C	N	R	A	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get custom logo**

SOH	F	C	N	R	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Paper counter**

The paper counter (kilometer value) of printer as well as of printhead can only be enquired by interface and not reset to 0.

**Get paper counter of printer**

SOH	F	C	H	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	N	N	N	N	N	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Get paper counter of printhead**

SOH	F	C	H	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	N	N	N	N	N	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNNNNNN = kilometer value of printer and/or printhead in meters  
(e.g. '00000123' = 123 m)

**8.8 Date & Time****Set date**

SOH	F	C	I	A	-	-	r	D	D	M	O	Y	Y	D	W	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

DD = day of month

MO = month

YY = year

DW = day of week ('00' = Sunday)

**Get date**

SOH	F	C	I	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	D	D	M	O	Y	Y	D	W	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set time**

SOH	F	C	I	B	-	-	r	H	H	M	I	S	S	A	M	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

HH = hours

MI = minutes

SS = seconds

AM = mode ('am' = 12 hours mode AM, 'pm' = 12 hours mode PM,  
'—' = 24 hours mode)

**Get time**

SOH	F	C	I	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	H	H	M	I	S	S	A	M	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Automatically adjust clock for daylight saving changes

Because of the fact that there is no world-wide regulation if and when a changing of time between summer and wintertime (normal time) in the individual countries takes place, we distinguish between the following four formats for the definition for beginning and end of summertime.

<b>F 0:</b>	European format start of summertime = last Sunday in March end of summertime = last Sunday in October <b>W:</b> week (1 = first, ..., 5 = last) <b>WD:</b> day of week (0 = Sunday, ..., 6 = Saturday) <b>MM:</b> month (01 = January, ..., 12 = December)
<b>F 1:</b>	Fix date with indication of year <b>DD:</b> day <b>MM:</b> month (01 = January, ..., 12 = December) <b>YY:</b> year
<b>F 2:</b>	Fix date without indication of year <b>DD:</b> day <b>MM:</b> month (01 = January, ..., 12 = December)
<b>F 3:</b>	Week day after day in month <b>WD:</b> day of week (0 = Sunday, ..., 6 = Saturday) <b>DD:</b> after day (only the first day is taken into consideration) <b>MM:</b> month (01 = January, ..., 12 = December)

### Set automatically adjust clock for daylight saving changes

SOH	F	C	I	G	-	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Get automatically adjust clock for daylight saving changes

SOH	F	C	I	G	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Automatically adjust clock for daylight saving changes Off

N: 1 = Automatically adjust clock for daylight saving changes On

**Set beginning of summertime**

**F 0:** SOH F C I H - - r F W ; W D ; M M ; H H ; M M ETB

**F 1:** SOH F C I H - - r F D D ; M M ; Y Y ; H H ; M M ETB

**F 2:** SOH F C I H - - r F D D ; M M ; H H ; M M ETB

**F 3:** SOH F C I H - - r F W D ; D D ; M M ; H H ; M M ETB

**Get beginning of summertime**

SOH F C I H - - w p p p p p p p p ETB

**Answer**

SOH A F W W D M M p p p p p p p p ETB

The answer depends on each set format.

**Set end of summertime**

**F 0:** SOH F C I I - - r F W ; W D ; M M ; H H ; M M ETB

**F 1:** SOH F C I I - - r F D D ; M M ; Y Y ; H H ; M M ETB

**F 2:** SOH F C I I - - r F D D ; M M ; H H ; M M ETB

**F 3:** SOH F C I I - - r F W D ; D D ; M M ; H H ; M M ETB

**Get end of summertime**

SOH F C I I - - w p p p p p p p p ETB

**Answer**

SOH A F W W D M M p p p p p p p p ETB

The answer depends on each set format.

**Set time shifting**

SOH F C I J - - r N N N - - - - ETB

NNN = minutes

**Get time shifting**

SOH F C I J - - w p p p p p p p p ETB

**Answer**

SOH A N N N p p p p p p p p ETB

## 8.9 Password

### Set password

SOH	F	C	K	A	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = input of password

4 digit ASCII number in mm (0000 ... 9999)

### Get password

SOH	F	C	K	A	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	N	N	N	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set function group

SOH	F	C	K	B	-	-	r	A	B	C	D	E	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

A: Function menu

0 = password Off

1 = password On

B: CF card

0 = password Off

1 = standard directory allowed

2 = password On

C: not assigned

D: Printer guiding

0 = password Off

1 = not assigned

2 = Password On

E: Favorites menu

0 = password Off

1 = password On

### Get function group

SOH	F	C	K	B	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	a	b	c	d	e	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----



**Set password function menu**

SOH	F	C	K	D	A	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = input of password  
4 digit ASCII number in mm (0000 ... 9999)

**Get password function menu**

SOH	F	C	K	D	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set password favorites menu**

SOH	F	C	K	D	B	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = input of password  
4 digit ASCII number in mm (0000 ... 9999)

**Enquire password favorites menu**

SOH	F	C	K	D	B	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set password memory card**

SOH	F	C	K	D	C	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = input of password  
4 digit ASCII number in mm (0000 ... 9999)

**Get password memory card**

SOH	F	C	K	D	C	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set password printing manually**

SOH	F	C	K	D	D	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = input of password  
4 digit ASCII number in mm (0000 ... 9999)

**Get printing manually**

SOH	F	C	K	D	D	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

## 8.10 SD Card

### Save a label onto SD card

SOH	F	M	A	O	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

- O: In case a label with the entered name exists already then the label is overwritten without an enquiry. If you enter another value as 0, an enquiry appears demanding if you want to overwrite.
- P: File name of the label which is to save. Drive and path name are optional, i.e. the file name is allowed to have more than 8 characters but is limited to 79.

### Load a file from SD card

SOH	F	M	B	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

- P: File name of the layout which is to load. Drive and path name are optional, i.e. the file name is allowed to have more than 8 characters but is limited to 79.

### Delete a layout from SD card

SOH	F	M	C	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

- P: File name of the layout which is to delete. Drive and path name are optional, i.e. the file name is allowed to have more than 8 characters but is limited to 79.

### Format SD card

SOH	F	M	D	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

- P: Optional drive identification with colon (e.g. A:).  
In case no drive is indicated, then the currently selected is formatted.

### Readout contents of SD card

SOH	F	M	G	O	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

- O: In case O is indicated, no error messages are displayed at the printing display e.g. if no card is inserted.
- P: Optional drive identification with colon (e.g. A:).  
In case no drive is indicated, then the currently selected is read out.

### Answer

SOH	File name/directory name	ETB
-----	--------------------------	-----

A list of all file entries is indicated, each entry is included in (SOH) and (ETB).

**Readout free memory space**

SOH	F	M	H	O	-	-	w	X	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

O: In case O is indicated, no error messages are displayed at the printing display e.g. if no card is inserted.

X = Drive [A,B] (optional)

**Answer**

SOH	A	X	n	n	n	n	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

X = Drive [A,B]

n = Memory space in KB

**Create directory**

SOH	F	M	I	O	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

O: In case a label with the entered name already exists, then it is overwritten without an enquiry.

If you enter another value as O, an enquiry appears demanding if you want to overwrite.

P = Drive and path indication

**Delete directory**

SOH	F	M	J	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

P = Drive and path indication

**NOTICE!**

The current directory cannot be deleted.

**Delete directory path**

SOH	F	M	J	A	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	---	-----

Deletes the indicated directory including all containing sub-directories and files.

**Change standard directory**

SOH	F	M	K	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

P = Drive and path indication

**Readout current directory**

SOH	F	M	K	-	-	-	w	ETB
-----	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	P	ETB
-----	---	---	-----

P = Current directory

**Set standard directory for file selection via I/O**

SOH	F	M	K	B	-	-	r	N	ETB
-----	---	---	---	---	---	---	---	---	-----

N = directory path

**Get standard directory for file selection via I/O**

SOH	F	M	K	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Transfer file from printing system**

SOH	F	M	L	-	-	-	w	P	ETB
-----	---	---	---	---	---	---	---	---	-----

P: File name of file which is to transfer. Drive name and path name are optional, i.e. the file name is allowed to have more than 8 characters but is limited to 79.

**Answer**

SOH	A	F	*	S	ETB	Data
-----	---	---	---	---	-----	------

F = File name

S = File size in Byte

Data = Binary data

**Enquiry if the file exists**

SOH	F	M	M	-	-	-	w	P	ETB
-----	---	---	---	---	---	---	---	---	-----

P: File name of file which is to transfer. Drive name and path name are optional, i.e. the file name is allowed to have more than 8 characters but is limited to 79.

**Answer**

SOH	A	X	P	ETB	Daten
-----	---	---	---	-----	-------

X: 0 = File does not exist

1 = File exists

P = File name

**Readout size of SD card**

SOH	F	M	P	O	-	-	w	X	ETB
-----	---	---	---	---	---	---	---	---	-----

O: In case O is indicated, no error messages are displayed at the printing display e.g. if no card is inserted.

X: Drive [A,B] (optional)

**Answer**

SOH	A	D	n	n	n	n	-	-	-	X	ETB
-----	---	---	---	---	---	---	---	---	---	---	-----

X = Drive [A,B]

n = Memory in KB

D = enquired drive

**Get drive status**

SOH	F	M	S	-	-	-	w	X	ETB
-----	---	---	---	---	---	---	---	---	-----

X - Drive [A,B]

**Answer**

SOH	A	X	S	ETB
-----	---	---	---	-----

X = Drive [A,B]

S = Status

0: no storage medium

1: not formatted

2: ready

3: not determinable

## 8.11 Printing

### Set number of lines (n digits)

SOH	F	B	A	A	-	-	r	N	ETB
-----	---	---	---	---	---	---	---	---	-----

N = number of lines in ASCII (1, 10, 100, ...)

### Get number of lines

SOH	F	B	A	A	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Start/Stop Command

In addition to the actual start/stop command, the print order can also be interrupted via the parameter/remote record.

SOH	F	D	-	-	-	-	r	N	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = stop printing

N: 1 = continue printing

N: 2 = cancel print order if it is already stopped

### Reset error

#### Reset error

SOH	F	C	M	H	-	-	r	N	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = current error ID or '9999'

#### Get error

SOH	F	C	M	H	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	N	N	N	0	0	0	0	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Get error ID and error text

SOH	F	C	M	H	A	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	N	N	N	:	error text	:	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	------------	---	---	---	---	---	---	---	---	-----

**Item number of print order**

By means of this command the Host computer can enquire following item numbers:

**Total number of current print order**

SOH	F	B	B	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Number of labels which are still to print**

SOH	F	B	B	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Number of already printed labels**

SOH	F	B	B	C	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Interval in cutter mode**

SOH	F	B	B	D	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

At the end of one of these commands the printer returns the corresponding number as ASCII value (4 res. 5 digits) in the answer set.

**Answer**

SOH	A	N	N	N	N	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

With this set it is also possible to transmit the item number of print order and the interval (in cutter mode) to the printer.

**Item number of print order**

SOH	F	B	B	A	-	-	r	N	N	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNNN = 5 digits item number of order

**Interval in cutter mode**

SOH	F	B	B	D	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNNN = interval

**Reset interval counter in cutter mode**

SOH	F	B	B	D	A	-	r	-	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Readout interval counter in cutter mode**

SOH	F	B	B	D	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Start printing**

SOH	F	B	C	-	-	-	r	S	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

This command starts the print order which is actually set in the printer. The current parameters such as print mode, speed, initialization etc. are used.

S = x: sorted (e.g. pages 1-5, then again 1-5 etc. are printed)

S = 1: unsorted (page 1 is printed x times, then page 2 x times, etc.)

SOH	F	B	D	-	-	-	r	S	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

Start printing (see above) but without tear off offset.

SOH	F	B	E	-	-	-	r	n	n	n	n	n	n	n	n	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

With this command the printjob identifier which appears in "printing" res. "stopped" window is assigned to a print order. If only blanks are transmitted, then the printjob identifier is deleted and the display shows "noname".

**Initialization of page handling**

SOH	F	B	F	-	-	-	r	ETB
-----	---	---	---	---	---	---	---	-----

**Selection of current page**

SOH	F	B	G	-	-	-	r	P	ETB
-----	---	---	---	---	---	---	---	---	-----

P = current page number [1...9]

**Select order of pages to be printed**

SOH	F	B	H	-	-	-	r	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	ETB
-----	---	---	---	---	---	---	---	----------------	----------------	----------------	-----

P<sub>1</sub>; P<sub>2</sub>;...= pages to be printed

**Generation of page without print start**

SOH	F	B	I	-	-	-	r	S	ETB
-----	---	---	---	---	---	---	---	---	-----

With this command the corresponding page is only generated, i.e. no print start signal is sent.

S = x: sorted (e.g. pages 1-5, then again 1-5 etc. are printed)

S = 1: unsorted (page 1 is printed x times, then page 2 x times, etc.)



**Feed****Parameter set to release a feed**

SOH	F	E	-	-	-	r	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Test print****Parameter set to release a test print**

SOH	F	F	-	-	-	r	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Status print****Parameter set to print a status print**

SOH	F	C	M	Q	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = printer settings

N: 1 = bar codes

N: 2 = fonts

**Cancel print orders****Parameter set to cancel all active print orders**

SOH	F	G	A	-	-	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: - = Cancel active print orders and delete all label data

N: 1 = Cancel active print orders and receive new label data

With the execution of this command:

- possible upcoming errors are confirmed
- possible upcoming customized entries are cancelled

## 8.12 Emulation

### Set emulation

SOH	F	Z	-	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = CVPL (Carl Valentin Programming Language)

N: 1 = ZPL II® (Zebra Programming Language)

### Get emulation

SOH	F	Z	-	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

## 9 Parameter Sets for Options

### 9.1 Cutter

#### Set cutter mode

SOH	F	C	D	D	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Cutter mode Off

N: 1 = Single cut

N: 2 = Mode 1 (without cutter offset), print number of pieces with cut after each label without backfeed

N: 3 = Mode 2 (with backfeed), print number of pieces with cut after each label with backfeed

N: 4 = Interval cut with final cut, transmit interval with later

N: 5 = Interval cut without final cut, transmit interval width later

N: 6 = Final cut (cut after print end)

#### Get cutter mode

SOH	F	C	D	D	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Set cutter offset

SOH	F	C	S	C	A	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V: pre-sign of offset (always +)

NNN: offset value, 3 digit ASCII number in 1/10 mm

#### Get cutter offset

SOH	F	C	S	C	A	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Set double cut

SOH	F	C	S	C	B	-	r	V	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V: pre-sign of offset (always +)

NNN: offset value, 3 digit ASCII number in 1/10 mm

0 = no double cut

#### Get double cut

SOH	F	C	S	C	B	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	V	N	N	N	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set control**

SOH	F	C	S	C	D	-	r	M	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

M: 0 = automatic cutter mode

M: 1 = external, cut can be effected by I/O

**Get control**

SOH	F	C	S	C	D	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	M	-	-	-	-	-	x	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set automatic return On/Off**

SOH	F	C	S	C	F	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On (default)

**Get automatic return On/Off**

SOH	F	C	S	C	F	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

## 9.2 Dispenser I/O

### Set dispenser mode

SOH	F	C	D	C	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Dispenser mode Off

N: 1 = External I/O static

N: 2 = Dispenser photocell

N: 3 = External I/O static continuous

N: 4 = Dispenser photocell continuous

N: 5 = External I/O dynamic

N: 6 = External I/O dynamic continuous

### Get dispenser mode

SOH	F	C	D	C	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set dispenser level photocell

SOH	F	C	C	F	-	-	r	V	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = pre-sign of offset (always +)

NN = offset value, 2 digit ASCII number in 1/10 Volt (5 ... 40)

### Get dispenser level photocell

SOH	F	C	C	F	-	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	V	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Set sensitivity of dispenser photocell

SOH	F	C	C	F	A	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = Indication of photocell sensitivity

3 digit ASCII number (001 ... 255)

### Get sensitivity of dispenser photocell

SOH	F	C	C	F	A	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

### Answer

SOH	A	V	N	N	-	-	-	-	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Get status of I/O inputs**

SOH	F	C	M	D	A	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

Inputs 1-8 / IO port 1-8:

- 1 = Port active
- 0 = Port not active
- = Port not connected, signal blocked or output

**Get status of I/O inputs**

SOH	F	C	M	D	A	B	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	---	---	---	---	---	---	---	-----

Inputs 1-16 / IO port 1-16:

- 1 = Port active
- 0 = Port not active
- = Port not connected, signal blocked or output

**Get status of I/O outputs**

SOH	F	C	M	D	B	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

Outputs 1-8 / IO port 9-16:

- 1 = Port active
- 0 = Port not active
- = Port not connected, signal blocked or input

**Get status of I/O outputs**

SOH	F	C	M	D	B	B	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	---	---	---	---	---	---	---	-----

Outputs 1-16 / IO port 1-16:

- 1 = Port active
- 0 = Port not active
- = Port not connected, signal blocked or input

**Set IN signal level**

SOH	F	C	M	D	C	-	r	1	2	3	4	5	6	7	8	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

IO port 1-8 (dispenser inputs 1-8):

- 2 = Increased and decreased
- 1 = Increased
- 0 = Decreased
- s = I/O signal by interface
- x = I/O signal blocked

Only possible for IO ports that are specified as input.

**Get IN signal level**

SOH	F	C	M	D	C	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set IN signal level**

SOH	F	C	M	D	C	B	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	-----

IO port 1-16 (dispenser inputs 1-16):

- 2 = Increased and decreased
- 1 = Increased
- 0 = Decreased
- s = I/O signal by interface
- x = I/O signal blocked

Only possible for IO ports that are specified as input.

**Get IN signal level**

SOH	F	C	M	D	C	B	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	---	---	---	---	---	---	---	-----

**Set OUT signal level**

SOH	F	C	M	D	D	-	r	1	2	3	4	5	6	7	8	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

IO port 9-16 (dispenser outputs 1-8):

- 1 = Signal level 1
- 0 = Signal level 0
- s = I/O signal by interface
- x = I/O signal blocked

Only possible for IO ports that are specified as output.

**Get OUT signal level**

SOH	F	C	M	D	D	-	w	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set OUT signal level**

SOH	F	C	M	D	D	B	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	-----

IO port 1-16 (dispenser output 1-16):

- 1 = Signal level 1
- 0 = Signal level 0
- s = I/O signal by interface
- x = I/O signal blocked

Only possible for IO ports that are specified as output.

**Get OUT signal level**

SOH	F	C	M	D	D	B	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	---	---	---	---	---	---	---	-----

**Set software input**

SOH	F	C	M	D	F	-	r	1	2	3	4	5	6	7	8	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

IO port 1-8 (dispenser inputs 1-8):

- 1 = Set software input
- 0 = Delete software input
- = Ignore software input
- P = Pulse, run software input once

Only possible for IO ports whose input signal levels are activated for interface.

**Example:** Activate a start impulse  
 (SOH) FCMDF-rP----- (ETB)

**Set software input**

SOH	F	C	M	D	F	B	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	-----

IO port 1-16 (dispenser inputs 1-16):

- 1 = Set software input
- 0 = Delete software input
- = Ignore software input
- P = Pulse, run software input once

Only possible for IO ports whose input signal levels are activated for interface.

An IO port that was set (1) must be deleted (0) first to activate a function when next setting (1).

**Example:** Activate a start impulse  
 (SOH) FCMDFB-rP----- (ETB)



**Set software output**

SOH	F	C	M	D	G	-	r	1	2	3	4	5	6	7	8	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

IO Port 9-16 (sispenser outputs 1-8):

1 = Set software output

0 = Delete software output

Only possible for IO ports whose output signal levels are activated for interface.

**Set software output**

SOH	F	C	M	D	G	B	r	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	-----

IO Port 1-16 (dispenser outputs 1-16):

1 = Set software output

0 = Delete software output

Only possible for IO ports whose output signal levels are activated for interface.

**Set dispenser offset**

SOH	F	C	S	D	A	-	r	V	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

V = prefix of offsets (always +)

NNN = offset value, 3 digit ASCII number in 1/10 mm

**Get dispenser offset**

SOH	F	C	S	D	A	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	V	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set start signal delay**

SOH	F	C	S	D	D	-	r	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNN = start signal delay in 1/100 s (0...999)

**Get start signal delay**

SOH	F	C	S	D	D	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set save start signal**

SOH	F	C	S	D	E	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get save start signal**

SOH	F	C	S	D	E	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set cancel continuous printing (operating mode)**

SOH	F	C	S	D	F	A	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = Off

N: 1 = On

**Get cancel continuous printing (operating mode)**

SOH	F	C	S	D	F	A	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Dispenser photocell****Get status of dispenser photocell**

SOH	F	C	M	B	E	A	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = no label at photocell

N: 1 = label at photocell

The set switching threshold of dispenser photocell is taken into consideration.

### 9.3 Label Applicator

#### Set operating mode

SOH	F	C	P	A	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = 0 – Off

N = 1 – Stamp on

N = 2 – Blow on

N = 3 – Roll on

#### Get operating mode

SOH	F	C	P	A	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = Current operating mode (see above)

#### Set application mode

SOH	F	C	P	B	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = 0 – Print-Apply

N = 1 – Apply-Print

#### Get application mode

SOH	F	C	P	B	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = Current application mode (see above)

#### Set support delay On

SOH	F	C	P	C	-	-	r	N	N	N	N	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Delay time in ms [0 ... 2500]

#### Get support delay On

SOH	F	C	P	C	-	-	w	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

#### Answer

SOH	A	N	N	N	N	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current support delay On (see above)

**Set support delay Off**

SOH	F	C	P	D	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Delay time in ms [0 ... 2500]

**Get support delay Off**

SOH	F	C	P	D	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current support delay Off (see above)

**Set vacuum control**

SOH	F	C	P	E	-	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = 0 – Off

N = 1 – On

**Get vacuum control**

SOH	F	C	P	E	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = current vacuum control (see above)

**Set blow time**

SOH	F	C	P	F	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Blow time in ms [0 ... 2500]

**Get blow time**

SOH	F	C	P	F	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = current blow time (see above)

**Set waiting position (blow on & apply print)**

SOH	F	C	P	G	-	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = 0 – Up

N = 1 – Down

**Get waiting position (blow on & apply-print)**

SOH	F	C	P	G	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = current waiting position (see above)

**Set roll-on time**

SOH	F	C	P	H	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Roll-on time in ms [0 ... 5000]

**Get roll-on time**

SOH	F	C	P	H	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current roll-on time (see above)

**Get applicator inputs**

SOH	F	C	P	I	-	-	w	p	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	N <sub>5</sub>	-	-	-	p	p	p	p	p	p	p	p	ETB
-----	---	----------------	----------------	----------------	----------------	----------------	---	---	---	---	---	---	---	---	---	---	---	-----

N<sub>1</sub>N<sub>2</sub>N<sub>3</sub>N<sub>4</sub>N<sub>5</sub> = Current state of applicator inputN<sub>1</sub> = 1 - Pre-dispense key pressedN<sub>2</sub> = 1 - Pad in final position upN<sub>3</sub> = 1 - Pad in final position downN<sub>4</sub> = 1 - Compressed air availableN<sub>5</sub> = 1 - Vacuum at pad available**Set applicator outputs**

SOH	F	C	P	J	-	-	r	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	N <sub>5</sub>	N <sub>6</sub>	N <sub>7</sub>	-	ETB
-----	---	---	---	---	---	---	---	----------------	----------------	----------------	----------------	----------------	----------------	----------------	---	-----

N<sub>1</sub> = 1 - Move pad downwardsN<sub>2</sub> = 1 - Move pad upwardsN<sub>3</sub> = 1 - not assignedN<sub>4</sub> = 1 - not assignedN<sub>5</sub> = 1 - Blowing air OnN<sub>6</sub> = 1 - Supporting air OnN<sub>7</sub> = 1 - Vacuum (pad) On**Get applicator outputs**

SOH	F	C	P	J	-	-	w	p	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	N <sub>4</sub>	N <sub>5</sub>	N <sub>6</sub>	N <sub>7</sub>	-	p	p	p	p	p	p	p	p	ETB
-----	---	----------------	----------------	----------------	----------------	----------------	----------------	----------------	---	---	---	---	---	---	---	---	---	-----

N<sub>1</sub>N<sub>2</sub>N<sub>3</sub>N<sub>4</sub>N<sub>5</sub>N<sub>6</sub>N<sub>7</sub> = Current state of applicator outputs (see above)

**Set cleaning time**

SOH	F	C	P	K	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Cleaning time in ms [0 ... 2500]

**Get cleaning time**

SOH	F	C	P	K	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current cleaning time (see above)

**Set timeout hub**

SOH	F	C	P	L	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Moving up and down of pad in ms [0 ... 5000]

**Get timeout hub**

SOH	F	C	P	L	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	P	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Set pressure control**

SOH	F	C	P	M	-	-	r	N	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = 0 – Off

N = 1 – On

**Get pressure control**

SOH	F	C	P	M	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	-	-	-	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N = Current pressure control (see above)

**Set pressure time**

SOH	F	C	P	N	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Pressure time in ms [0 ... 5000]

**Get pressure time**

SOH	F	C	P	N	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current pressure time

**Set vacuum delay On**

SOH	F	C	P	O	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Delay time in ms [0 ... 2500]

**Get vacuum delay On**

SOH	F	C	P	O	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current vacuum delay (see above)

**Set vacuum delay Off**

SOH	F	C	P	P	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Delay time in ms [0 ... 2500]

**Get vacuum delay Off**

SOH	F	C	P	P	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current vacuum delay (see above)

**Set delay lower end position**

SOH	F	C	P	U	-	-	r	N	N	N	N	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Delay time in ms [0 ... 1000]

**Get delay lower end position**

SOH	F	C	P	U	-	-	w	p	p	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Answer**

SOH	A	N	N	N	N	-	-	-	-	p	p	p	p	p	p	p	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

NNNN = Current delay time (see above)





## 10 Configuration & Status

### Save configuration permanent

In case you want to save the described settings permanent into the printer, then you have to transmit the following command to the printer.

SOH	F	X	-	-	-	-	r	N	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

N: 0 = save current parameter

N: 1 = set all parameters to default values

Then the printer performs a restart

### Read configuration

SOH	F	X	-	-	-	-	w	-	-	-	-	-	-	-	ETB
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

The printer sends as answer all current settings as parameter sets.

### Status enquiry

Host computer can receive information about the printer by the serial interface.

The status enquiry has the following data format:

SOH	S	ETB
-----	---	-----

### Status return information

After receiving the status enquiry the printer sends the corresponding status return information.

### Data format of status enquiry

SOH	1. Byte	2. Byte	5.-1. digit	ETB
	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1		

1. Byte	=	1. Status byte
		8. Bit = free 7. Bit = always set 6. Bit = free 5. Bit = 1 = running print order 0 = no. of items (0 = no print order) 4. Bit = 1 = press stop key 0 = not pressed stop key 3. Bit = cutter error (0 = no error; 1 = error) 2. Bit = label material (0 = no error; 1 = error) 1. Bit = transfer ribbon (0 = no error; 1 = error)
2. Byte	=	2. Status byte
		8. Bit – 4. Bit = free 3. Bit = Compact Flash card 2. Bit = Mask set 1. Bit = Printhead temperature
5.-1. digit	=	number of pieces with 5 digits as ASCII characters min. '00000' / max. '65535'

## 10.1 Autostatus

The printers are equipped with an auto status function, i.e. in certain operating modes the printer actively sends the corresponding status. This can be enquired by the serial interface.

To activate the auto status, the host computer has to send the following command to the printer:

SOH	G	1. Byte	2. Byte	ETB
-----	---	---------	---------	-----

Each of the below indicated message which is observed and send by the printer has to be transmitted with a set Bit (see table below 1. Byte and 2. Byte) to the printer by means of auto state function. The printer sends after each performed condition the corresponding message (answer) to the host computer.

The following messages are provided:

### 1 Start of generation

### 2 End of generation

The printer sends this state in case data for a complete label was generated. The test print was not taken into consideration. For counters/date variables the printer sends for each label a status cycle (start, end).

### 3 Start of printing

### 4 End of printing

The start of the print is send in case the generated data is send. The end of the print is send in case the print of the label is finished and the motor has stopped.

### 5 Start of cutting

### 6 End of cutting

This status describes the cutting. It can be checked for timeout and the end of the cut movement → error.

### 7 Start of feeding

### 8 End of feeding

This status is send in case an additional feeding (dispenser, cutter, tear off) is released.

### 9 Start of a print order

### 10 End of print order

This status signalizes the start and end of a complete print order (1...99999 labels). This status is active in all operating modes.

### 11 Error

This status message is send in case an error occurs.

### 12 Printing stopped

This message is send if the printing is stopped.

### 13 Printing resumed

This message is send if the printing is resumed.

The printer sends the auto status in the following format to the host computer:

SOH	G	1. Byte	2. Byte	ETB
-----	---	---------	---------	-----

#### 1. Byte

- |                              |                        |
|------------------------------|------------------------|
| 8. Bit = start of generation | 4. Bit = start cutting |
| 7. Bit = end of generation   | 3. Bit = end of cut    |
| 6. Bit = start printing      | 2. Bit = start feeding |
| 5. Bit = end of print        | 1. Bit = always 0      |

#### 2. Byte

- |                               |                           |
|-------------------------------|---------------------------|
| 8. Bit = end of label feed    | 4. Bit = free             |
| 7. Bit = start of print order | 3. Bit = printing stopped |
| 6. Bit = end of print order   | 2. Bit = printing resumed |
| 5. Bit = error                | 1. Bit = always 0         |



#### NOTICE!

Bit 1 has to be in 1. Byte and 2. Byte always 0, otherwise the printer possibly could recognize SOH or ETB.

At the status message of the printer to the host computer always at least 1 Bit is set. However, it could be occur that several Bits are set at the same time.

At the status demand of the host computer to the printer it is also possible that several Bits are set at the same time.

The auto status demand is saved in the printer, i.e. it is set to 0 after switching off/on. Therefore it is necessary to demand it anew after each time the printer is switched on.

#### Example

The printer should observe the start of a print order. For this the host computer sends the following demand to the printer.

SOH	G	00000000	01000000	ETB
-----	---	----------	----------	-----

After the condition is fulfilled (= start of the print order) the printer sends the following message to the host computer:

SOH	G	00000000	01000000	ETB
-----	---	----------	----------	-----

With regard to the contents the answer corresponds always to the format set.



## 11 Monitored Printing

This protocol replaces the outdated Autostatus. In contrary to the Autostatus, this is not a binary protocol but a text-based protocol sending the commands as English clear text. The advantage is a very fast and simple error tracing and development. The disadvantage of a larger data volume plays nowadays a smaller role.

### 11.1 Short Introduction

In order to activate monitored printing:

(SOH)FHM---rSE(ETB)

(SOH)FHA---r2(ETB)

### 11.2 Parameter Sets (Host – Printer)

Formatting: # - SOH \* - ETB

**Command:** Set monitoring mode.

**Syntax:** #FHM---rSEPnnnCnFn\*

**Example:** #FHM---rSP10E\*

**Description:** Activates the forwarding of certain events to the server. The results are:

S - (start/stop): print start, print end, stop printing, continue printing, cancel printing.

E – (error): Error occurred, error confirmed.

C – (photocell): Activates the photocell test (n=1)/disable (n=0)

F – Activates the encoder profile (n=1)/disable (n=0)

P – (progress): Print progress, indicates the number of already printed labels. In standard case, the interval between two events is a label. If a number behind the flag is indicated, an event every *nnn* labels is released (see example). With column printing the event is released, as soon as the entered interval was reached or exceeded for the first time (example: 3 columns, interval 4, 20 labels in total. Event at label 6,9,12 and 18).

**Command:** Activate, disable the monitoring.

**Syntax:** #FHA---rn\*

**Example:** #FHA---r2\*

**Description:** activated, deactivates the monitoring (n=[0,2]);  
,0' – enables the monitoring after completion of print order,  
,1' – reserved  
,2' – activates the monitoring for the current port.

### 11.3 Direct Enquiry

**Command:** Requests print status.

**Syntax:** #FHS---r\*

**Example:** #FHS---r\*

**Description:** Invites the client to send the current status.

**Command:** User command to the sender of print order.

**Syntax:** #FHU---r*Data*\*

**Example:** #FHU---rSE\*

**Description:** Sends #*Data*\* to the sender of print order.  
Max 100 characters.

### 11.4 Answer Sets (Printer – Host)

**Event:** Print start

**Set:** #HSStart-*Pagename-Labelsrequested*\*

**Example:** #HSStart-NoName1-100\*

**Description:** Indicates the start of a print order, including page name and number of labels to be printed.

**Event:** Printing completed

**Set:** #HSDone-*Pagename-Labelsprinted*\*

**Example:** #HSDone-NoName1-100\*

**Description:** Indicates the completion of a print order including page name and number of printed labels.

**Event:** Printing stopped

**Set:** #HSHold-*Pagename-Labelsprinted*\*

**Example:** #HSHold-NoName1-10\*

**Description:** Indicates the stopping of print order including page name and number of printed labels. Occurs when the user stopped the print order and/or after occurrence of an error.

**Event:** Continue printing

**Set:** #HSContinue-*Pagename-Labelsprinted*\*

**Example:** #HSContinue-NoName1-55\*

**Description:** Indicates the continuation of print order including page name and number of printed labels. Occurs when the user restarts the print order.

**Event:** Cancel printing

**Set:** #HSAborted-*Pagename-Labelsprinted*\*

**Example:** #HSAborted-NoName1-57\*

**Description:** Indicates the cancelation of printing including page name and number of printed labels.

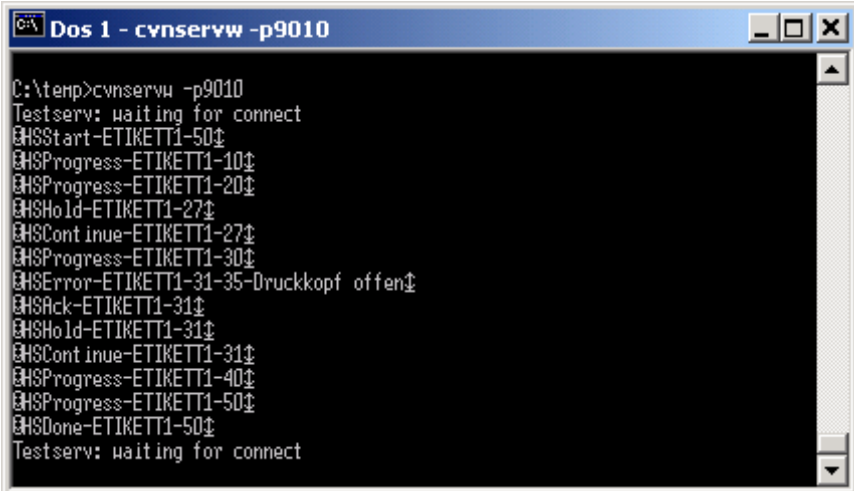
**Event:** Error**Set:** #HSError-*Pagename-Labelsprinted-ErrorID-Errormessage*\***Example:** #HSError-NoName1-57-28-Messerfehler\***Description:** Indicates the occurrence of an error including page name, number of printed labels, error ID and error text.**Event:** Error confirmation at printer**Set:** #HSAck-*Pagename-Labelsprinted* \***Example:** #HSAck-NoName1-57\***Description:** Indicates the confirmation of an error including page name and number of printed labels.**Event:** Print progress**Set:** #HSPProgress-*Pagename-Labelsprinted* \***Example:** #HSPProgress-NoName1-60\***Description:** Indicates the progress of print order including page name and number of printed labels. This event is also returned as answer to status enquiry, if the printer is printing.**Event:** Photocell value**Set:** #HSPhotocell-DLS:xxx-RLS:xxx\***Example:** #HSPhotocell-DLS:3.8-RLS:1.9\***Description:** Returns the values of transmission and reflexion photocell. The verification takes place every 5 ms; only changes are sent.**Event:** Encoder profile**Set:** # HSEnc-Dist:xxx-Speed:xxx\***Example:** # HSEnc-Dist:120-Speed:202\***Description:** Generates the profile of speed development of the packaging machine during a print order.**Event:** Answer to status enquiry (#FHS---r\*)**Description:** The respective current print event is returned.

## 11.5 Sample Label

A simple label with monitoring of all parameters with output of the progress – all 10 labels could look as following:

```
FHM---rSP10E
//Ueberwachung einschalten
FHA---r2
// JOBNAME: "ETIKETT1"
FBE---rETIKETT1
// TYPE: Endlosetiketten
// HEIGHT: 20.00 mm
// GAPLENGTH: 2.00 mm
// COLUMNS: 1
// COLUMN DISTANCE: 100.00 mm
FCDA--r1-----
FCCL--r0002000-
FCCM--r00000---
FCCHA-r1-----
FCCHB-r999-----
// SPEED: 50 mm/s
FCAA--r050-----
// CONTRAST: 200%
FCAB--r200-----
// LABELCONTROL: 0
FCDE--r0-----
// RIBBONCONTROL: 1
// RIBBONSENS: 0
FCDB--r10-----
// MATERIAL: Typ 1
FCDNA-r0-----
FCDNB-r1-----
FCDNC-r0000----
// SCAN MODE: 0
// SCAN PORT: 0
// NO READ: 0
// FEED LABEL: 0
FCDM--r0000----
// MIRROR LABEL: Nein
FCDO--r0-----
// TEXT (1/100 mm)
AM[1]1407;6907;0;4;0;3;398;398;8
BM[1]Test
// SETLINENO: 1 lines
FBAA--r1
// SETCOPIES: 1
FBBA--r00050---
// PRINT
FBC---r-----
```

The server output, for example, looks as follows:



```
Dos 1 - cvnservw -p9010

C:\temp>cvnservw -p9010
Testserv: waiting for connect
MSStart-ETIKETT1-50
MSProgress-ETIKETT1-10
MSProgress-ETIKETT1-20
MSHold-ETIKETT1-27
MSContinue-ETIKETT1-27
MSProgress-ETIKETT1-30
MSError-ETIKETT1-31-35-Druckkopf offen
MSAck-ETIKETT1-31
MSHold-ETIKETT1-31
MSContinue-ETIKETT1-31
MSProgress-ETIKETT1-40
MSProgress-ETIKETT1-50
MSDone-ETIKETT1-50
Testserv: waiting for connect
```



## 12 Font Examples

### 12.1 Bitmap Fonts (Not Proportional)

Font 01 (8 x 11) Verhältnis 3:3  
 Font 02 (12 x 17) Verhältnis 3:3  
 Font 03 (18 x 26) Verhältnis 2:2  
 Font 04 (40 x 56) Verhältnis 1:1  
 Font 05 (18 x 32 mit Unterlängen) Verhältnis 2:2  
 Font 07 (12 x 22 mit Unterlängen) Verhältnis 2:2

### 12.2 Bitmap Fonts (Proportional)

Font 21 ( 10 proportional) Verhältnis 3:3  
 Font 22 (18 proportional) Verhältnis 2:2  
 Font 23 (26 proportional) Verhältnis 2:2  
 Font 24 (56 proportional) Verhältnis 1:1  
 Font 28 (40 proportional) Verhältnis 1:1  
 Font 29 (8 proportional) Verhältnis 5:5

### 12.3 Vector Fonts

Absender (Baskerville)	Das ist ein Musteretikett
Gold, Petra (Swiss Light)	für die Darstellung der
Name, Vorname (Helvetica Bold)	Schriftarten (Monospace)
Goldstraße 456 (Swiss Light)	
Straße, Hausnummer (Helvetica Bold)	
23456 Golddorf (Swiss Light)	
PLZ, Ort (Helvetica Bold)	
<i>Musterlieferung</i>	Empfänger (Baskerville)
<i>Bitte bestätigen Sie</i>	Mustermann, Max (Helvetica Roman)
<i>den Empfang. (Brush Script)</i>	Name, Vorname (Helvetica Bold)
	Musterstraße 123 (Helvetica Roman)
	Straße, Hausnummer (Helvetica Bold)
	45678 Musterstadt (Helvetica Roman)
	PLZ, Ort (Helvetica Bold)



## 13 Index

### #

*FBAA, number of lines.....	86
*FBBA, total items of print order .....	87
*FBBB, labels still to print.....	87
*FBBC, already printed labels.....	87
*FBBD, interval (cutter) .....	87
*FBBDA, interval counter (cutter) .....	87
*FBC, start printing.....	88
*FBD,start printing (w/o tear-off offset) .....	88
*FBE, start printing (assign printjob identifier) .....	88
*FBF, initialisation of page handling .....	88
*FBG, selection of current page.....	88
*FBH, order of pages .....	88
*FBI, generation of page w/o print start .....	88
*FCAA, print speed .....	59
*FCAB, contrast .....	54
*FCB, measure label.....	51
*FCCA, label synchronization at switching on .....	63
*FCCB, buzzer .....	61
*FCCBB, contrast.....	62
*FCCD, y offset .....	71
*FCCE, x offset .....	71
*FCCF, dispenser level photocell .....	93
*FCCFA, sensitivity dispenser photocell.....	93
*FCCG, tear off offset .....	71
*FCCHA, column printing (no. of columns).....	53
*FCCHB, column printing (column width) .....	53
*FCCJ, alignment.....	53
*FCK, keyboard layout .....	61
*FCCL, label length.....	52
*FCCM, gap length .....	52
*FCCN, codepage.....	60
*FCCO, label width .....	52
*FCCP, external printer parameters .....	60
*FCCR, zero point adjustment (x value) .....	73
*FCCR, zero point adjustment (y value) .....	73
*FCDA, label type .....	51
*FCDB, transfer ribbon control.....	59
*FCDC, operating mode (dispenser I/O).....	93
*FCDD, operating mode (cutter) .....	91
*FCDE, label photocell.....	51
*FCDEA, scan position .....	55
*FCDEB, sensitivity transmission photocell .....	56
*FCDEC, sensitivity reflexion photocell .....	56
*FCDGA, label error length .....	52
*FCDGB, synchronization.....	53
*FCDI, printer language .....	60
*FCDJC, CMI length .....	64
*FCDK, field handling.....	59
*FCDN, rotate label.....	54
*FCDNC, material selection .....	55
*FCDND, rotate label in 90 degrees .....	55

*FCDO, flip label .....	54
*FCDS, flip/rotate label .....	54
*FCDU, customized entry .....	61
*FCDW, hotstart .....	62
*FCDX, autoloading .....	62
*FCFF, interface parameters .....	65
*FCGC, SOH/ETB.....	65
*FCGD, data memory .....	66
*FCGEA, reaction unknown questions .....	66
*FCHA, paper counter printer .....	77
*FCHB, paper counter printhead .....	77
*FCIA, date .....	77
*FCIB, time.....	77
*FCIG, automatic clock adjustment .....	78
*FCIH, beginning of summertime.....	79
*FCII, end of summertime .....	79
*FCIJ, time shifting.....	79
*FCKA, password.....	80
*FCKB, function group (password) .....	80
*FCKDA, password function menu .....	81
*FCKDB, password favorites menu .....	81
*FCKDC, password memory card.....	81
*FCKDD, password printing manually .....	81
*FCLA, IP address (network) .....	67
*FCLB, netmask (network).....	67
*FCLC, gateway address (network).....	67
*FCLD, transmission mode (network).....	68
*FCLE, DHCP support (network) .....	68
*FCLF, printer name (network) .....	68
*FCLMB, MAC address (network) .....	69
*FCLNI, NTP server IP (network) .....	69
*FCLNS, NTP status (network).....	70
*FCLNZ, time zone (network) .....	70
*FCLZ, reset network device (network) .....	70
*FCMAA, label parameter A.....	57
*FCMAB, label parameter B.....	57
*FCMAC, label parameter C .....	57
*FCMBA, transfer ribbon photocell .....	57
*FCMBB, label photocell .....	58
*FCMBEA, dispenser photocell .....	58, 98
*FCMC, printhead temperature.....	74
*FCMCA, printhead locking.....	74
*FCMDA, I/O inputs .....	94
*FCMDAB, I/O inputs .....	94
*FCMDB, I/O outputs .....	94
*FCMDBB, I/O outputs.....	94
*FCMDC, in signal level.....	95
*FCMDCB, in signal level.....	95
*FCMDD, out signal level.....	95
*FCMDDB, out signal level .....	96
*FCMDF, software input.....	96
*FCMDFB, software input .....	96
*FCMDG, software output.....	97
*FCMDGB, software output .....	97
*FCMG, printhead resistance .....	76
*FCMH, reset error.....	86
*FCMHA, error ID/error text .....	86

*FCMKC, online/offline.....	73
*FCMKD, reprint action .....	74
*FCMKE, standard label .....	62
*FCMLA, ribbon prior warning .....	75
*FCMLB, ribbon prior warning diameter .....	75
*FCMLC, ribbon diameter .....	75
*FCMLDA, mode (ribbon prior warning) .....	75
*FCMLDB, reduced speed (ribbon prior warning) .....	76
*FCMP, winder output.....	74
*FCMQ, status print .....	89
*FCMRA, backfeed operating mode .....	63
*FCMRB, backfeed delay.....	63
*FCMT, print length correction .....	76
*FCNRA, custom logo.....	76
*FCPA, operating mode (applicator) .....	99
*FCPB, application mode (applicator).....	99
*FCPC, support delay on (applicator) .....	99
*FCPD, support delay off (applicator) .....	100
*FCPE, vacuum control (applicator) .....	100
*FCPF, blow time (applicator).....	100
*FCPG, waiting position (applicator) .....	100
*FCPH, roll-on time (applicator) .....	101
*FCPI, inputs (applicator).....	101
*FCPJ, outputs (applicator).....	101
*FCPK, cleaning time (applicator).....	102
*FCPL, timeout hub (applicator) .....	102
*FCPM, pressure control (applicator) .....	102
*FCPN, pressure time (applicator).....	102
*FCPO, vacuum delay on (applicator) .....	103
*FCPP, vacuum delay off (applicator).....	103
*FCPU, delay lower end position (applicator) .....	103
*FCSCA, cutter offset.....	72
*FCSCA, offset (cutter) .....	91
*FCSCB, double cut (cutter) .....	91
*FCSCD, control (cutter) .....	92
*FCSCF, automatic return (cutter) .....	92
*FCSDA, dispenser offset.....	72
*FCSDA, offset (dispenser I/O).....	97
*FCSDD, start signal delay .....	97
*FCSDE, save start signal .....	98
*FCS DFA, continuous printing (operating mode) cancel.....	98
*FCSDFC, label change confirmation .....	63
*FD, start/stop command .....	86
*FE, feed .....	89
*FF, test print .....	89
*FGA, cancel print order .....	89
*FMA, save label (SD card) .....	82
*FMB, load file (SD card) .....	82
*FMC, delete layout (SD card) .....	82
*FMD, format (SD card) .....	82
*FMG, table of contents (SD card).....	82
*FMH, memory space (SD card).....	83
*FMI, create directory (SD card) .....	83
*FMJ, delete directory (SD card) .....	83
*FMJA, delete directory path (SD card) .....	83
*FMK, change directory (SD card).....	83
*FMKB, standard directory via I/O (SD card).....	84

*FML, transfer file (SD card) .....	84
*FMM, enquiry if the file exists (SD card) .....	84
*FMP, size of SD card.....	84
*FMS, drive status (SD card) .....	85
*FZ, emulation.....	90

## A

application mode (label applicator), parameter set .....	99
applicator inputs (label applicator), parameter set .....	101
applicator outputs (label applicator), parameter set.....	101
autoload.....	62

## B

backfeed	
delay .....	63
operating mode .....	63
blow time (label applicator), parameter set .....	100
buzzer.....	61

## C

cleaning time (label applicator), parameter set .....	102
clock adjustment, automatical	
beginning of summertime .....	79
end of summertime .....	79
time shifting.....	79
codepage.....	60
column printing .....	53
configuration and status	
autostatus .....	106
saving.....	105
status enquiry .....	105
status return information .....	105
contrast.....	54, 62
custom logo .....	76
customized entry .....	61
cutter	
automatic return.....	92
control .....	92
double cut .....	91
mode .....	91
offset .....	72, 91

## D

data format	
explanation .....	10
field attributes .....	11
field name .....	12, 13, 14, 15, 16
field properties .....	11
general information.....	9
Data format	
Field selection .....	16
data memory .....	66
date/time	
automatic clock adjustment .....	79
automatical clock adjustment .....	78
date .....	77
time .....	77
datum point (text, bar code, graphic) .....	7
delay lower end position (label applicator), parameter set.....	103

DHCP support	
network .....	68
dispenser I/O	
continuous printing (operating mode) .....	98
dispenser level photocell .....	93
dispenser photocell .....	98
I/O inputs .....	94
I/O outputs .....	94
in signal level .....	95
mode .....	93
offset .....	97
out signal level .....	95, 96
save start signal .....	98
sensitivity dispenser photocell .....	93
software input .....	96
software output .....	97
start signal delay .....	97
dispenser photocell .....	58
dispenser, offset .....	72
display brightness .....	62
double cut, parameter set .....	91

## E

emulation .....	90
external printer parameters .....	60

## F

feed .....	89
field handling .....	59
flip label .....	54
font examples	
bitmap fonts (not proportional) .....	113
bitmap fonts (proportional) .....	113
vector fonts .....	113
format identifier, date/time .....	39, 40, 41

## G

gap length .....	52
gateway address	
network .....	67
generation, selected page .....	88
graphic set	
general graphic format .....	33
PCX format .....	33, 34

## H

hotstart .....	62
----------------	----

## I

in signal level (dispenser I/O) .....	95
initialisation of page handling .....	88
inputs I/O (dispenser I/O) .....	94
interface	
parameters .....	65
SOH/ETB .....	65
IP address	
network .....	67

**K**

keyboard layout .....	61
-----------------------	----

**L**

label	
alignment .....	53
column printing .....	53
flip .....	54
label change confirmation .....	63
label error length .....	52
label photocell .....	51, 58
label type .....	51
length .....	52
measure .....	51
rotate .....	54
standard label .....	62
synchronization at switching on .....	63
width .....	52
label applicator	
application mode .....	99
applicator inputs .....	101
applicator outputs .....	101
blow time .....	100
cleaning time .....	102
operating mode .....	99
pressure control .....	102
pressure time .....	102
roll-on time .....	101
support delay off .....	100
support delay on .....	99
timeout hub .....	102
vacuum control .....	100
vacuum delay .....	103
waiting position .....	100
label applicator (option)	
delay lower end position .....	103
label parameters	
column printing .....	53
contrast .....	54
flip label .....	54
gap length .....	52
label alignment .....	53
label error length .....	52
label length .....	52
label photocell .....	51
label rotation in 90 degrees .....	55
label type .....	51
label width .....	52
level maximal (label parameter B) .....	57
material selection .....	55
measure label .....	51
reflexion transmission photocell .....	56
rotate label .....	54
scan position .....	55
sensitivity transmission photocell .....	56
synchronization .....	53
label photocell	
level minimal (label parameter B) .....	57
switching threshold (label parameter C) .....	57



label rotation in 90 degrees .....	55
line number .....	86

## M

MAC address	
network .....	69
mask set	
bar code Aztec Code .....	28
bar code CODABLOCK F .....	25
bar code DataMatrix .....	23
bar code GS1 DataMatrix .....	24
bar code MAXICODE .....	22
bar code PDF417 .....	21
bar code QR Code .....	27
bar code, GS1 DataBar (RSS) .....	26
bar code, ITF .....	20
bar code, one-dimensional .....	19
internal graphic .....	30
line .....	29
rectangle .....	29
text .....	17, 18
material selection .....	55
measure, label .....	51
monitored printing .....	109, 110, 111, 112

## N

netmask	
network .....	67
network	
DHCP support .....	68
gateway address .....	67
IP address .....	67
MAC address .....	69
netmask .....	67
NTP server IP .....	69
printer name .....	68
reset network device .....	70
time zone (hour offset) .....	70
transmission mode .....	68
Network	
NTP status .....	70
NTP server IP .....	69
NTP status .....	70

## O

offset values	
cutter offset .....	72
dispenser offset .....	72
tear off offset .....	71
x offset .....	71
y offset .....	71
online/offline .....	73
order (pages to print) .....	88
out signal level (dispenser I/O) .....	95, 96
outputs I/O (dispenser I/O) .....	94

## P

paper counter	
printer .....	77
printhead .....	77
parameter sets	
data memory .....	66
date/time .....	77, 78, 79
emulation .....	90
interface .....	65
iterface protocol .....	65
label applicator .....	99
label parameters .....	51, 52, 53, 54, 55, 56
network .....	67, 68, 69
offset values .....	71
password .....	80, 81
password favorites menu .....	81
password function menu .....	81
password memory card .....	81
password printing manually .....	81
photocells .....	57, 58
printer parameters .....	59, 60, 61, 62, 63, 64
printing .....	86, 87, 88, 89
SD card .....	82, 83, 84, 85
service functions .....	73, 74, 75, 76
parameter sets (options)	
cutter .....	91, 92
dispenser I/O .....	93, 94, 95, 96, 97, 98
password .....	80, 81
photocell	
dispenser photocell .....	58
label photocell .....	58
level maximal (label parameter A) .....	57
level minimal (label parameter A) .....	57
switching threshold .....	57
transfer ribbon photocell .....	57
photocell, label photocell .....	51
pressure control (label applicator), parameter set .....	102
pressure time (label applicator), parameter set .....	102
print length correction .....	76
print order, cancel .....	89
print speed .....	59
printer	
language .....	60
name .....	68
printer parameters	
autoload .....	62
backfeed, delay .....	63
backfeed, operating mode .....	63
buzzer .....	61
cmi length .....	64
codepage .....	60
contrast .....	62
customized entry .....	61
external printer parameters .....	60
field handling .....	59
hotstart .....	62
keyboard layout .....	61

label change confirmation.....	63
label synchronization at switching on .....	63
print speed .....	59
printer language .....	60
standard label .....	62
transfer ribbon control.....	59
printhead	
locking.....	74
resistance .....	76
temperature .....	74
printing	
cancel print orders .....	89
feed .....	89
generation of selected page .....	88
Initialisation of page handling .....	88
item number of print order .....	87
number of lines .....	86
print order .....	88
reset error .....	86
selection of current page .....	88
start printing .....	88
start/stop command .....	86
status printing .....	89
test print .....	89
printing, start.....	88

## R

reaction, unknown questions.....	66
reprint action.....	74
reset error .....	86
reset network device .....	70
roll-on time (label applicator), parameter set.....	101
rotate label.....	54
rotation (text, bar code, graphic) .....	7

## S

scan position .....	55
SD card	
change directory .....	83
create directory .....	83
delete directory .....	83
delete directory path .....	83
delete layout .....	82
drive status .....	85
enquiry if the file exists .....	84
format card.....	82
Load file .....	82
readout free memory space.....	83
save label.....	82
size of memory card .....	84
standard directory via I/O.....	84
transfer file .....	84
sensitivity reflexion photocell.....	56
sensitivity transmission photocell .....	56
serial data transmission	
connection plan RS232.....	6
connector assignment.....	5

service functions	
custom logo .....	76
online/offline.....	73
print length correction .....	76
printhead locking.....	74
printhead resistance .....	76
printhead temperature .....	74
reprint action .....	74
transfer ribbon prior warning.....	75
transfer ribbon prior warning, diameter.....	75
transfer ribbon prior warning, mode.....	75
transfer ribbon prior warning, reduced speed.....	76
winder output .....	74
zero point adjustment (x value) .....	73
zero point adjustment (y value) .....	73
software input (dispenser I/O) .....	96
software output (dispenser I/O) .....	97
SOH/ETB.....	65
Speed .....	59
standard label .....	62
start/stop command.....	86
status print .....	89
support delay off (label applicator), parameter set.....	100
support delay on (label applicator), parameter set.....	99
switching threshold, photocell .....	57
synchronization .....	53
synchronization at switching on .....	63

## T

tear off offset .....	71
test print.....	89
text set	
example .....	32
general information .....	31
time zone (hour offset) .....	70
timeout hub (label applicator), parameter set.....	102
transfer ribbon photocell.....	57
transfer ribbon prior warning .....	75
diameter.....	75
mode .....	75
reduced speed .....	76
transmission mode .....	68

## V

vacuum control (label applicator), parameter set.....	100
vacuum delay (label applicator), parameter set .....	103
variables	
check digit.....	48
counter .....	36
counter, extended.....	37
currency variable .....	42
date/time .....	38, 39, 40, 41
EPC (Electronic Product Code) .....	47
GS1-128 Parser .....	46
link field .....	35
memory card data.....	46
set structure .....	35

shift variable.....	43
substring .....	49
user guiding .....	44
user guiding with mask .....	45

## **W**

waiting position (label applicator), parameter set.....	100
winder output.....	74

## **X**

x offset .....	71
----------------	----

## **Y**

y offset .....	71
----------------	----

## **Z**

zero point adjustment (x value) .....	73
zero point adjustment (y value) .....	73



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