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ETIKETTENDRUCKSYSTEME

Vita II Series

INTERFACE MANUAL

January 2012

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Carl Valentin label printers comply with the following safety guidelines:

CE EG Low-Voltage Directive (2006/95/EC)
EG Electromagnetic Compatibility Directive (2004/108/EC)

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ETIKETTENDRUCKSYSTEME

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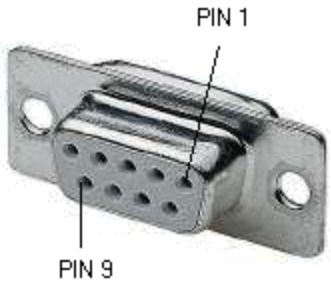
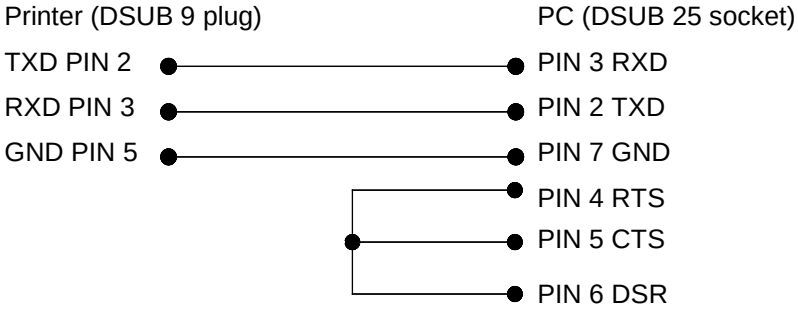
1.1 Connector Assignment (9-pin DSUB Socket)

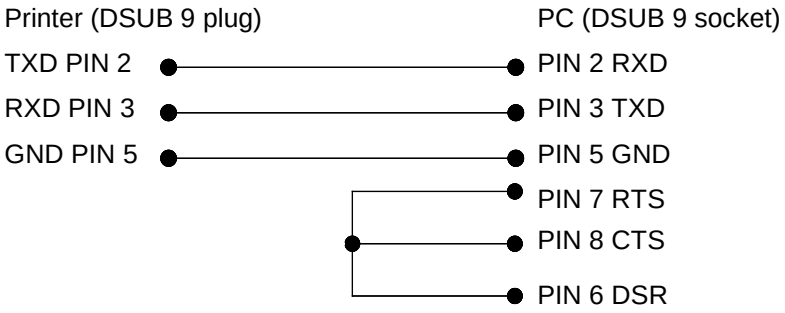


Pin	Signal	Description
2	T x D	Transmitting data line
3	R x D	Receiving data line
5	GND	GND signal
7	CTS	HW Handshake
8	RTS	HW Handshake

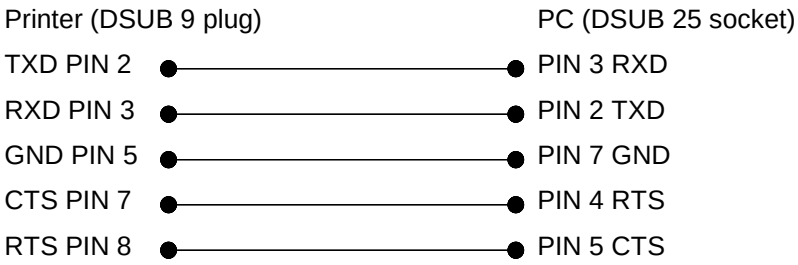
1.2 Connection Plan RS232

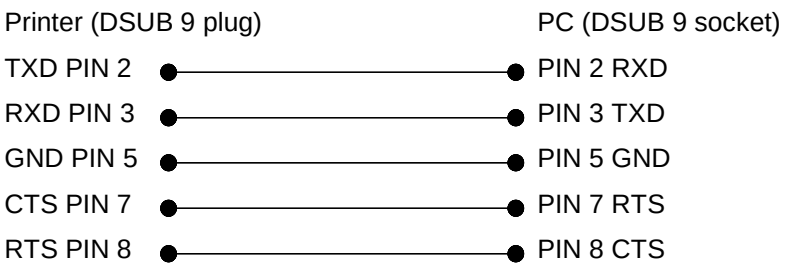
Software Handshake





Hardware Handshake





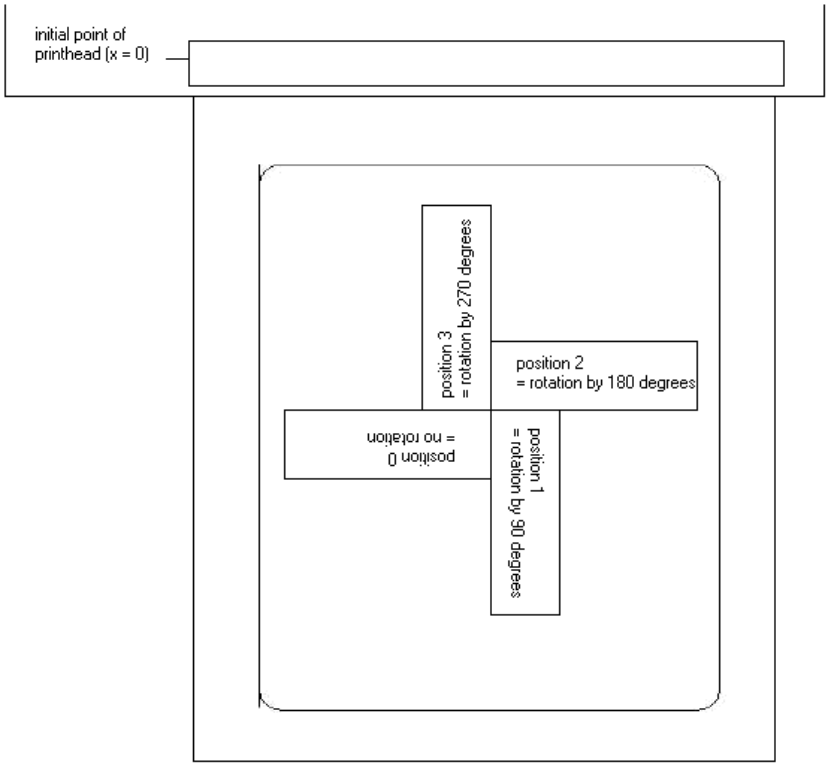
2 Parallel Data Transmission

2.1 Connection Plan

Signal Pin no.	Signal name	Direction	Function
1	$\overline{\text{STROBE}}$	(Input)	The $\overline{\text{STROBE}}$ signal indicates that data can be received. The impulse width to the receiving line has to be 0,5 µs at least.
2	DATA 0	(Input)	The signals are data bits sent to the printer. A HIGH level corresponds to logical 1 and a LOW level to logical 0.
3	DATA 1	(Input)	
4	DATA 2	(Input)	
5	DATA 3	(Input)	
6	DATA 4	(Input)	
7	DATA 5	(Input)	
8	DATA 6	(Input)	
9	DATA 7	(Input)	
10	ACK/	(Output)	An impulse of approx. 12 µs confirms data input for a LOW level and signalises the further listening watch of the printer.
11	BUSY	(Output)	A HIGH level indicates that the printer cannot receive any data. On the following conditions the signal HIGH is possible: 1) for data input (impulse for each sign) 2) during a printing process 3) in Offline status 4) for printer failures
12	PE	(Output)	A HIGH level indicates that paper is used up.
13	SELECT	(Output)	High Online
14	AUTOFEED		
15	FAULT/	(Output)	Signal goes to LOW, in case 1) the paper is used up 2) the printer is Offline or 3) an error occurs.
16	INIT/	(Input)	A LOW level initializes the printer
17	SELECTIN/	(Input)	A LOW level informs the printer to be addressed
18-25	GND		

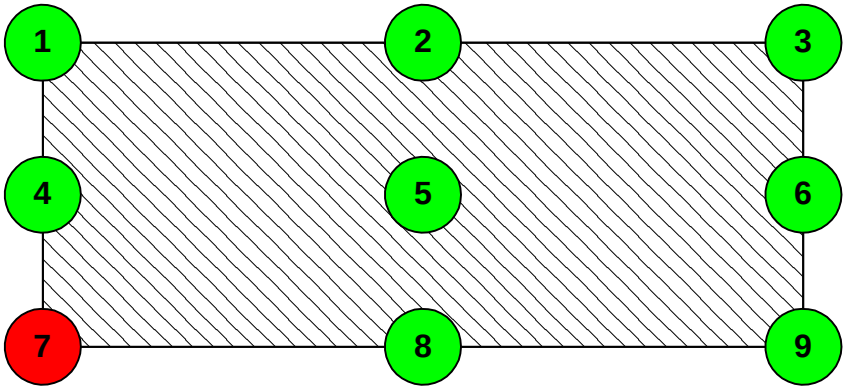
3 Text, Bar Code, Graphic

3.1 Definition of Rotation



3.2 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.



4 Data Format

The data format consists of four parties:

- Mask set
- Graphic
- Text
- Command

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

- n - mask sets
- n - graphic sets (if necessary)
- n - text sets
- 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 it is possible to set SOH to $5E_{Hex}$ and ETB to $5F_{Hex}$. 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_{HEX}

n = field number '01' - transmission: 30_{HEX}, 31_{HEX}

4.1 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 chose 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.

4.2 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
	ITF 14 (see page 17)
BT	bearer bar type
BW	bearer bar width
QZ	quiet zone in 1/100 mm
	Field name (see page 12)
NAME	definition of field name
	Field number (see page 13)
FN	Free definable field number
	Foreground and background
BGND	background of field
FGND	foreground of field

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

4.3 Field Name

Application (customized)

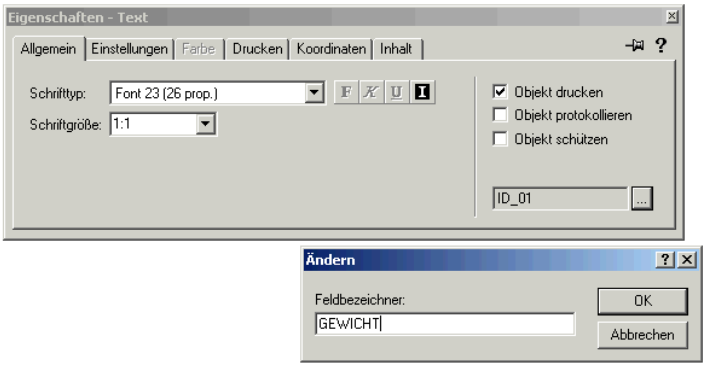
1. The label is created with Labelstar PLUS.
2. Label data are saved on Compact Flash card of printer.
3. An external control (SPS, balance, ERP system, etc.) modifies variable fields of the label (e.g. weight, article no., batch no., etc.) and starts the print of label.

Explanation

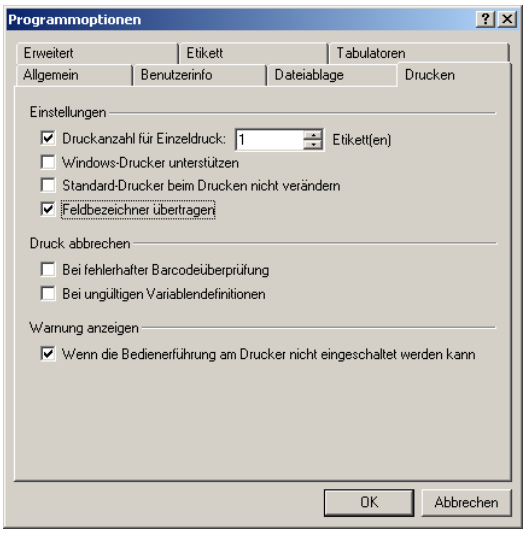
So far the fields were designated by numbers (1, 2, 3, ...) which were determined by the order of creation in Labelstar PLUS. By later modifications of label, these field numbers were possibly changed whereby the access to a certain field was no longer possible. By the field names this dependence is annulled.

Procedure

a) Labelstar PLUS
- Enter 'Field identifier'



- Select check box 'Transmit field identifier'



b) Save label on Compact Flash card of printer.

c) The external control loads first the saved label from Compact Flash card of printer with **(SOH)FMB---rF(ETB)**
See chapter 'Compact Flash card'.

d) With text set **(SOH)BV[NAME]...(ETB)** the contents of field is determined.

e) With parameter set **(SOH)FBC---rS-------(ETB)** the print is started (see page 74).

4.4 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)
```

5 Mask Set

5.1 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° 1 = 90° 2 = 180° 3 = 270°
z	**character set not proportional bitmap fonts (1+2)** 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 **character sont proportional bitmap fonts (1+2)** 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 **character set vector fonts (4-7)** 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
dy	extension in direction Y bitmap fonts factor 0..9 bektor fonts character size in 1/100 mm vector fonts autoscale field height
dx	extension in direction X bitmap fonts factor 0-9 bektor 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

5.2 One-Dimensional Bar Code

AM[n]y;x;p;a;d;h;v1;v2;pz;z;dp	
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 42 = 2/5 Industrie 43 = Leitcode 44 = Identcode 46 = Code 39 extended 47 = Code 128 A 48 = Code 128 B 49 = Pharmacode
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

5.3 ITF Bar Code

AM[n]y;x;p;a;d;h;v1;v2;pz;z;dp	
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 56 = ITF 14
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

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
BT	bearer bar type 0 = no bars 1 = above/below 2 = rectangle
BW	bearer bar width in 1/100 mm
QZ	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)
```

5.4 PDF417 (2D Bar Code)

AM[n]y;x;p:a;d;s;rw;rh;ec;z;dp;c;r	
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

5.5 MAXICODE (2D Bar Code)

AM[n]y;x;p;a;d;0;sn;ns;m;0;dp	
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

5.6 DataMatrix (2D Bar Code)

AM[n]y;x;p;a;d;s;aw;ah;ec;f;dp	
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

5.7 GS1 DataMatrix (2D Bar Code)

AM[n]y;x;p;a;d;s;aw;ah;ec;f;dp	
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

5.8 CODABLOCK F (2D Bar Code)

AM[n]y;x;p;a;d;h;nc;nl;m;s;dp	
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

5.9 GS1 DataBar (RSS Code)

AM[n]y;x;p;a;d;s;m;k;t;0;dp	
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

5.10 QR Code

AM[n]y;x;p;a;d;mo;cs;ms;cw;ec;dp	
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

5.11 Rectangle

AM[n]y;x;p;a;h;b;s;m;dp	
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

5.12 Line

AM[n]y;x;p;a;d;l;s;m;dp	
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

5.13 Internal Graphic

AM[n]y;x;p;a;d;dx;dy;dp	
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 = horizontal 1 = vertical
dx	rotation in direction X
dy	rotation in direction Y
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

6 Text Set

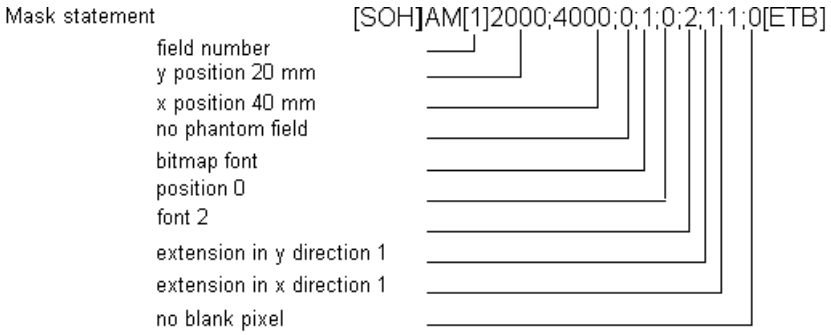
BM[n]text	
B	identification for text set
M	identification for extended protocol
n	field number
text	data contents, text

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

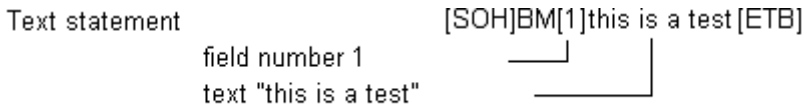
BF[n]text	
B	identification for text set
F	identification for selection by free definable field number
n	field number
text	data contents, text

6.1 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⊕ $^{C}_{R}$ $^{L}_{F}$	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⊕ $^{C}_{R}$ $^{L}_{F}$	five mask sets vector font / proportional font
⊗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⊕ $^{C}_{R}$ $^{L}_{F}$	
⊗BM[2]Art.Nr. ⊕ $^{C}_{R}$ $^{L}_{F}$	five appropriate text sets
⊗BM[3]44444⊕ $^{C}_{R}$ $^{L}_{F}$	
⊗BM[4]Artikelbezeichnung⊕ $^{C}_{R}$ $^{L}_{F}$	
⊗BM[5]DM⊕ $^{C}_{R}$ $^{L}_{F}$	
⊗BM[6]99,-- ⊕ $^{C}_{R}$ $^{L}_{F}$	
⊗FBA000r06000000⊕	number of lines
⊗FBBA00r00001000⊕	number of items
⊗FBC000r00000000⊕	start

: graphic data in PCX format
⊗: SOH (1_{hex} bzw $5E_{hex}$)
⊕: ETB (17_{hex} bzw. $5F_{hex}$)
$^{C}_{R:}$ CarrigeReturn ($0D_{hex}$)
$^{L}_{F:}$ LineFeed ($0A_{hex}$)

7 Graphic Set

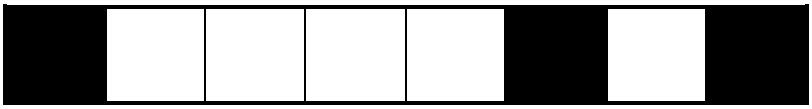
7.1 General Graphic Format

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

Graphic byte



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

7.2 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	y	x	x	x	x	x	x	m	dp	ETB

n	Index of transferred graphic to printer internal maintenance at present not processed (000)		
y	Y coordinate of graphic in 1/100 mm		
x	X coordinate of graphic in 1/100 mm		
m	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)		
dp	datum point 1 = left top 4 = left centre 7 = lleft bottom (default)	2 = centre top 5 = centre centre 8 = centre bottom	3 = right top 6 = right centre 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).

7.3 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]DM⊕ $^{C}_{R}$ $^{L}_{F}$ ⊗BM[6]99,-- ⊕ $^{C}_{R}$ $^{L}_{F}$	five appropriate text sets
⊗FBA00r06000000⊕ ⊗FBBA00r00001000⊕ ⊗FBC000r00000000⊕	set number of lines (FBA...) set quantity (FBBA..) start print order (FBC...)

: Grafikdaten im PCX Format
⊗: SOH (1_{hex} bzw $5E_{hex}$)
⊕: ETB (17_{hex} bzw. $5F_{hex}$)
$^{C}_{R:}$ CarrigeReturn ($0D_{hex}$)
$^{L}_{F:}$ LineFeed ($0A_{hex}$)

8 Variables

8.1 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

8.2 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

8.3 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)
Limitation:
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.

8.4 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, ...

8.5 Date and Time

SOH BM [n] = CL (m;d;i;n;c;mo;pd;pm;md;mm;rw;ws) t1 t.. t70 ETB

= CL identification date/time

m month offset to the actual date

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 ot the actual time

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

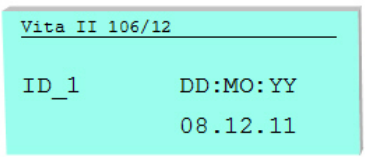
Example

Actual date as per Real Time Clock: 22.01.10

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:



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: =CL (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.

8.6 Format Identifier (Date & Time)

Standard format	
HH	Hours 2-digit (24 hours)
HE	**Hours 2-digit (12 hours)**
MI	Minutes 2-digit
SS	Seconds 2-digit
AM	**AM/PM output**
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 For x it is possible to enter any ASCII character from which is counted continuously
DOWxxxxxxx	Day of week - variable For x it is possible to enter any ASCII character 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

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

Extended format - XSO

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

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

Extended format - XSD

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

Extended format - XLD

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

8.7 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 calculates the term
e	Operand B	
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*

* 1 USD = 0,68861 Euro (11.01.2010)

8.8 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

Enquire shift variable

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

Answer

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

Set shift text

SOH	F	C	I	E	-	-	r	N	N	T	T	T	T	T	T	T	T	T	T	ETB

NN = ID [01 ... 10]
T = max. 24 characters

Enquire shift variable

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

Answer

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

8.9 Memory Card Data

SOH	BM	[n]	=	M	D	(	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

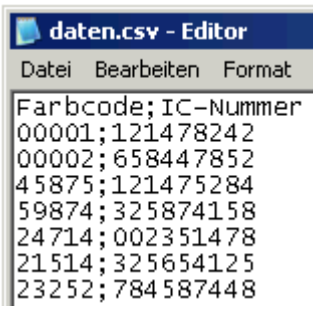
NOTICE!

If in parameter SF a field name is indicated, this must have beed 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



8.10 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.

SOH	BM	[n]	=	A	I	(	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

8.11 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

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	**Coding**	**Filter value**	**Binary**
	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 = "41412345678901282541 23“ 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

9 Parameter Sets

9.1 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
N: 4 = ultrasonic photocell (option)

Enquire label photocell type

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

Answer

SOH	A	N	-	-	-	-	-	-	-	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

Enquire label type

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

Answer

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

EEEE = label length in mm (ASCII)
SSSS = gap length in mm (ASCII)

Set measure label automatically after switching on

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

N: 0 = Off
N: 1 = On

Enquire measure label automatically after switching on

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

Answer

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

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

Enquire 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	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

Enquire 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	-	-	-	p	p	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

Enquire 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	p	ETB

Set label error length

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

NNNN = indication of label error length in mm (1-9999)

Enquire 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	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

Enquire 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	p	ETB

Set number of columns

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

N = number of columns (1..9)

Enquire 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	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)

Enquire 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	p	ETB

Set label alignment

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

N: 0 = left
N: 1 = centre
N: 2 = right

Enquire label alignment

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

Answer

SOH	A	N	-	-	-	-	-	-	-	p	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.

Enquire contrast

SOH	F	C	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	p	ETB

Set flip label

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

N: 0 = flip label Off
N: 1 = flip label On

Enquire flip label

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

Answer

SOH	A	N	-	-	-	-	-	-	-	p	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

Enquire rotate label

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

Answer

SOH	A	X	-	-	-	-	-	-	-	p	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

Enquire 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	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

Enquire material selection

SOH	F	C	D	N	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	p	ETB

Set scan position

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

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

Enquire scan position

SOH	F	C	D	E	A	-	w	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)

Enquire sensitivity of transmission photocell

SOH	F	C	D	E	B	-	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 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)

Enquire sensitivity of reflexion photocell

SOH	F	C	D	E	C	-	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

9.2 Photocell

Enquire minimal measured level at label photocell (label parameter A)

SOH	F	C	M	A	A	-	w	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

Enquire maximal measured level at label photocell (label parameter B)

SOH	F	C	M	A	B	-	w	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+(max-min)/3)

Enquire switching threshold

SOH	F	C	M	A	C	-	w	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

Enquire current value at transfer ribbon photocell

SOH	F	C	M	B	A	-	w	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

Enquire current value at label photocell

SOH	F	C	M	B	B	-	w	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 label photocell, 3 digit ASCII number in 1/100 V

Enquire status at 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	p	ETB

N: 0 = no label at photocell
N: 1 = label at photocell
Set switching threshold of dispensing photocell is taken into consideration.

9.3 Printer Parameters

Set print speed

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

NNN: Indication of print speed in mm/s
Vita II 104/8 + Vita II 1038/8 T = 50 to 200
Vita II 106/12 + Vita II 108/12 T = 50 to 150
Vita II 106/24 = 50 to 100
It is necessary to transmit a 3 digit ASCII number

Enquire 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	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

Enquire 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	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

Enquire 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	p	ETB

Set printer language

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

N: 0 = German
N: 1 = English
N: 2 = French
N: 3 = Spanish
N: 4 = Finish
N: 5 = Czech (optional)
N: 6 = Portuguese
N: 7 = Netherlands
N: 8 = Italian
N: 9 = Danish
N: 10 = Polish

Enquire printer language

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

Answer

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

Set external printer parameters

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

N: 0 = parameter settings by interface are not taken into consideration
N: 1 = parameter settings by interface are processed

Enquire external printer parameters

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

Answer

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

Set Codepage

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

N: 0 = ANSI
N: 1 = Codepage 437 (English)
N: 2 = Codepage 850
N: 3 = GEM German
N: 4 = GEM English
N: 5 = GEM French
N: 6 = GEM Swedish
N: 7 = GEM Danish
N: 8 = Codepage 437 (Greek)
N: 9 = Codepage 852 (East European)
N: 10 = Codepage 857 (Turkish)

Enquire Codepage

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

Answer

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

Set customized entry

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

N: 0 = Off, no entries are possible but pre-set values are printed

N: 1 = On, the user has to enter a value for each variable or to confirm the pre-set values by pressing the enter key. This default value is set each time the printer is switched on

N: 2 = Auto, the entries for a label are repeated after each print and the last entered values are the new pre-set values

Enquire customized entry

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

Answer

SOH	A	N	-	-	-	-	-	-	-	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 = Czech

Enquire keyboard layout

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

Answer

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

Set buzzer On/Off

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

N: 0 = buzzer Off
N: 1 = buzzer On

Enquire buzzer On/Off

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

Answer

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

Set brightness of display (contrast)

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

N = value range of display brightness 35 to 85

Enquire display brightness

SOH	F	C	C	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

Set hotstart On/Off

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

N: 0 = Off
N: 1 = On

Enquire hotstart On/Off

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

Answer

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

Set autoload

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

N: 0 = Off
N: 1 = On

Enquire autoload

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

Answer

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

Enquire standard label On/Off

SOH	F	C	M	K	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 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

Enquire 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	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

Enquire 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	p	ETB

Set label change confirmation

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

N: 0 = Off
N: 1 = On

Enquire 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	p	ETB

9.4 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 ⇒ COM 1
x = 2 ⇒ 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)

Enquire all interface parameters

SOH	F	C	F	F	x	-	w	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	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_{Hex} and
ETB = 17_{Hex}. However there are host computers (e.g. AS/400), which cannot work with these characters. Therefore you can switch SOH = $5E_{Hex}$ and ETB = $5F_{Hex}$. 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_{Hex}, ETB = 17_{Hex}
N: 1 = SOH = $5E_{Hex}$, ETB = $5F_{Hex}$

Enquire SOH and ETB

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

Answer

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

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.

Enquire data memory

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

Answer

SOH	A	M	-	-	-	-	-	-	-	p	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

Enquire reaction to unknown questions

SOH	F	C	G	E	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 port transmission

SOH	F	C	G	F	-	-	R	S	T	-	-	-	-	-	-	ETB

S = source (indication of source port)
T = target (indication of target source)
Port numbers = 1 to 6
1 = COM1
2 = COM2 (depending on printer)
3 = LPT
4 = USB
5 = TCP
6 = UDP

Enquire port transmission

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

Answer

SOH	A	"	S1-T1	;	S2-T2	;	...	ID	:	p	p	p	p	p	p	p	p	"	ETB

9.5 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

Enquire IP address

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

Answer

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

Set net mask (e.g. 255.255.255.0)

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

Enquire net mask

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

Answer

SOH	A	F	F	F	F	F	F	0	0	p	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

Enquire Gateway address

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

Answer

SOH	A	C	0	A	8	0	0	0	1	p	p	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
1 = 10 MBit/s half duplex
2 = 10 MBit/s full duplex
3 = 100 MBit/s half duplex
4 = 100 MBit/s full duplex
Enquire 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

Enquire 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	ETB

N = printer name can consist of max. 11 characters
[A..Z, a..z, 0..9, -, -]

Enquire 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	;	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

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

With a B record it is possible to modify our identification of the MAC address. 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 it is possible to set any address in our pool.

Enquire MAC address

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

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

Answer

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

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

NTP Server

NTP (Network Time Protocol) is a standardised Internet protocol permitting the synchronisation 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)

Enquire NTP Server IP

SOH	F	C	L	N	I	-	w	pppppppp	ETB

Answer

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

Answer

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

N: OK / ERROR / OFF

Set time zone (hour offset)

SOH	F	C	L	N	Z	-	r	N	ETB

N: -12, 12

Enquire time zone (hour offset)

SOH	F	C	L	N	Z	-	w	pppppppp	ETB

Answer

SOH	A	N	N	N	N	N	N	N	N	p	p	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.

9.6 Offset Values

Set zero point displacement (Offset 2/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

Enquire zero point displacement (Offset 2)

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

Answer

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

Set displacement in direction X (Offset 3)

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

Enquire displacement in direction X (Offset 3)

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

Answer

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

Set tear-off edge (Offset 4)

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

Enquire tear off edge (Offset 4)

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

Answer

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

Enquire 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

Enquire 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	p	ETB

9.7 Service Functions

Set zero point adjustment (Y value)

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

Enquire 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	p	ETB

Set zero point adjustment (X value)

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

Enquire 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	p	ETB

Set Online / Offline

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

M: 0 = Offline Off
M: 1 = Offline On

Enquire 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

Enquire reprint action

SOH	F	C	M	K	D	-	w	p	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	p	ETB

Set winder output

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

N: 0 = Off
N: 1 = On

Enquire winder output

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

Answer

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

Enquire status of printhead locking

SOH	F	C	M	C	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 = locking open
N: 1 = locking closed

Enquire printhead temperature

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

Answer

SOH	A	N	-	-	-	-	-	-	p	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

Enquire transfer ribbon prior warning

SOH	F	C	M	L	A	-	w	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

Enquire 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

Readout 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	p	ETB

Set reduced print speed (ribbon prior warning)

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

N: - =	not reduce print speed
N: 0 =	stop printer with transfer ribbon error when reaching the warning diameter
N = $M_{in.}$ ... V_{max}:	reduced print speed (depending on printer type)

Enquire reduced print speed (ribbon prior warning)

SOH	F	C	M	L	D	-	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 printhead resistance

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

NNNNN = value of resistance in Ohm.

Enquire 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	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)

Enquire 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	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.

Enquire 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	p	p	p	p	p	p	p	p	ETB

Enquire 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	p	p	p	p	p	p	p	p	ETB

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

9.8 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)

Enquire 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	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)

Enquire 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	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.

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

Set automatically adjust clock for daylight saving changes

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

Enquire 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	;	WD	;	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	WD	;	D	D	;	M	M	;	H	H	;	M	M	ETB

Enquire 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	;	WD	;	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	WD	;	D	D	;	M	M	;	H	H	;	M	M	ETB

Enquire 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

Enquire 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

9.9 Password

Set password

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

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

Enquire password

SOH	F	C	K	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	p	ETB

Set function group

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

A: Function menu
A: 0 = free
A: 1 = blocked

B: CF card
B: 0 = free
B: 1 = reading only
B: 2 = access blocked

C: Entry
C: 0 = free
C: 1 = masks blocked only
C: 2 = no entry possible

D: Printer guiding
D: 0 = free
D: 1 = number of copies menu possible
D: 2 = no manual print release

Enquire function group

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

Answer

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

Set password active

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

N: 0 = inactive (N in display)
N: 1 = active (J in display)

Enquire password active

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

Answer

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

9.10 Compact Flash Card

Save a label onto Compact Flash card

SOH	F	M	A	*O*	-	-	r	*F*	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.

F = 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 Compact Flash card

SOH	F	M	B	-	-	-	r	*F*	ETB

F = 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.

Delete a label from Compact Flash card

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

F = 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.

Format Compact Flash card

SOH	F	M	D	-	-	-	r	*D*	ETB

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

Readout free memory space

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

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	-	-	-	r	*P*	ETB

P = Drive and path indication

Create directory
(without warning if the directory exists already)

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!

Das aktuelle Verzeichnis kann nicht gelöscht werden.

Change standard directory

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

P = Drive and path indication

Readout current directory

SOH	F	M	K	-	-	-	w	ETB

P = Drive and path indication

Answer

SOH	A	*P*	ETB

P = Current directory

Transfer file from printer

SOH	F	M	L	-	-	-	w	*F*	ETB

F - File name of file which is to transfer. Drive* 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

9.11 Printing

Set number of lines (n digits)

SOH	F	B	A	A	-	-	r	N	ETB

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

Enquire number of lines

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

Answer

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

Start/Stop Command

Additionally to the start / stop command it is possible to interrupt a print order via parameter / remote set.

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'

Enquire error

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

Readout error ID and error text

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

Answer

SOH	A	N	N	N	N	;	error text	;	p	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	ETB

Number of labels which are still to print

SOH	F	B	B	B	-	-	w	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	ETB

Interval in cutter mode

SOH	F	B	B	D	-	-	w	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	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

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. Therefore it is possible to print e.g. item numbers with 5 digits. However, before you have to transmit the corresponding item number with set 'FBBA'.

S = 1: sorted (e.g. pages 1-5, then again 1-5 etc. are printed)
S = x: 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_1	P_2	P_3	ETB

P_1; P_2;...= 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 = 1: sorted (e.g. pages 1-5, then again 1-5 etc. are printed)
S = x: 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 label data

With the execution of this command:

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

9.12 Remote Console

Set interface

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

N: 0 = Off
N: 1 = COM1
N: 2 = Ethernet

Enquire interface

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

Answer

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

Set sending interval of display contents

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

N: 0 = on demand
N: 1 = at each change of display contents
N: 500...5000 = sending interval in ms

Enquire sending interval of display contents

SOH	F	C	R	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	p	ETB

9.13 Emulation

Set emulation

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

N: 0 = CVPL (Carl Valentin Programming Language)
N: 1 = ZPL II® (Zebra Programming Language)

Enquire 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	p	ETB

10 Parameter Sets for Options

10.1 WLAN (Wireless Local Area Network)

Set IP address (e.g. 192.168.1.21)

SOH	F	C	W	I	-	-	r	x	ETB

x = 192.168.1.21

Enquire IP address

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

Answer

SOH	A	1	9	2	.	1	6	8	.	1	.	2	1	ETB

Set net mask (e.g. 255.255.255.0)

SOH	F	C	W	M	-	-	r	x	ETB

x = 255.255.255.0

Enquire net mask

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

Answer

SOH	A	2	5	5	.	2	5	5	.	2	5	5	.	0	ETB

Set Gateway address (e.g. 192.168.1.2)

SOH	F	C	W	G	-	-	r	x	ETB

x = 192.168.1.2

Enquire Gateway address

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

Answer

SOH	A	1	9	2	.	1	6	8	.	1	.	2	ETB

Set DHCP support

SOH	F	C	W	D	-	-	r	x	ETB

x: 0 = Off
x: 1 = On

Enquire DHCP support

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

Answer

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

Set server port (e.g. 9001)

SOH	F	C	W	P	-	-	r	x	ETB

Value range for x = 1 - 65535

Enquire server port

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

Answer

SOH	A	9	0	0	1	;	ETB

Set SSID (Service Set Identifier) identification (e.g. TESTWLAN)

SOH	F	C	W	S	-	-	r	x	ETB

x = TESTWLAN

Enquire SSID identification

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

Answer

SOH	A	T	E	S	T	W	L	A	N	;	ETB

Set WEP64 encryption

SOH	F	C	W	V	-	-	r	x	ETB

x = Hex string, 10 characters

Answer

SOH	A	x	;	ETB

Set WEP128 encryption

SOH	F	C	W	W	-	-	r	x	ETB

x = Hex string, 26 characters

Answer

SOH	A	x	;	ETB

Set PSK encryption

SOH	F	C	W	K	-	-	r	x	ETB

x = Hex string, 64 characters

Answer

SOH	A	x	;	ETB

Set encryption type

SOH	F	C	W	E	-	-	r	x	ETB

x: 0 = Off
x: 1 = WEP64
x: 2 = WEP128
x: 3 = PSK

Enquire encryption type

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

Answer

SOH	A	x	;	ETB

10.2 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)

Enquire cutter mode

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

Answer

SOH	A	N	-	-	-	-	-	-	-	p	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

Enquire 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 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

Enquire control

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

Answer

SOH	A	M	-	-	-	-	-	-	x	p	p	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)

Enquire automatic return On/Off

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

Answer

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

10.3 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

Enquire 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	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)

Enquire dispenser level photocell

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

Answer

SOH	A	V	N	N	-	-	-	-	-	p	p	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)

Enquire sensitivity of dispenser photocell

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

Answer

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

Enquire status of I/O inputs

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

Answer

SOH	A	0	1	2	3	4	5	6	7	p	p	p	p	p	p	p	p	ETB

P: Inputs/outputs 1-8

Set status of I/O outputs

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

Answer

SOH	A	0	1	2	3	4	5	6	7	p	p	p	p	p	p	p	p	ETB

P: Inputs/outputs 1-8

Set IN signal level

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

1-8 (inputs 1-8): 1 = increased
0 = decreased
s = I/O signal by interface
x = I/O signal blocked

Enquire signal level

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

Answer

SOH	A	0	1	2	3	4	5	6	7	p	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

1-8 (outputs 1-8): 1 = signal level 1
0 = signal level 0
s = I/O signal by interface
x = I/O signal blocked

Enquire OUT signal level

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

Answer

SOH	A	0	1	2	3	4	5	6	7	p	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

1-8 (inputs 1-8): 1 = set software input
0 = delete software input
- = not considering software input
P = pulse, execute software input once

Example: Auslösen eines Startimpulses = `FCMDF-rP-------`

Enquire current status of software inputs

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

Answer

SOH	A	0	1	2	3	4	5	6	7	p	p	p	p	p	p	p	p	ETB

Set software output

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

1-8 (outputs 1-8): 1 = set software output
0 = delete software output

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

Enquire 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	p	ETB

Set external synchronisation

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

N: 0 = Off
N: 1 = On

Enquire external synchronisation

SOH	F	C	S	D	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 start signal delay

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

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

Enquire 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	p	ETB

Set save start signal

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

N: 0 = Off
N: 1 = On

Enquire 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	p	ETB

Set cancel continuous printing (operating mode)

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

N: 0 = Off
N: 1 = On

Enquire 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	p	ETB

Dispenser photocell

Enquire 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	p	ETB

N: 0 = no label at photocell
N: 1 = label at photocell
The set switching threshold of dispensing photocell is taken into consideration.

11 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

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 = free 7. Bit = free 6. Bit = free 5. Bit = free 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'

11.1 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. Here it is possible to check the end of the cutting at timeout → 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.

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
7. Bit = end of generation
6. Bit = start printing
5. Bit = end of print
4. Bit = start cutting
3. Bit = end of cut
2. Bit = start feeding
1. Bit = always 0

2. Byte

8. Bit = end of label feed
7. Bit = start of print order
6. Bit = end of print order
5. Bit = error
4. Bit = free
3. Bit = free
2. Bit = free
1. Bit = always 0

HINWEIS!

Bit 1 has to be in1. 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.

12 Character Sets

		Bitmap Fonts												Vector Fonts					
	ID	01	02	03	04	05	07	21	22	23	24	28	29	1/2	3/4	5/6	7/8	9/10	11/12
		7x9 10x14	10x14 15x21	15x21 22x31	32x45 48x67	15x26 [1] 22x39 [1]	10x18 [1] 15x27 [1]	1,0; 13	1,8; 21	2,6; 31	5,6; 67	4,0; 48	0,8; 9	Helvetica Bold	Helvetica Roman	Swiss Light	Basker-ville	Brush Script	Mono-space
GEM Germn		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
GEM English		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
GEM French		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
GEM Swedish		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
GEM Danish		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
CP 437 (German)		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
CP 850 (mutilingual West European)		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
CP 852 (multinlingual East European)		[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[6]	[6]	[6]	[6]	[6]	[6]
CP1250 (Latin 2; Central European)		[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[2]	[2]	[6]	[6]	[6]	[2]
CP1251 (Cyrillic)		[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	6	[4]	[4]	[6]	[6]	[6]	[4]
CP1252 ANSI (Latin 1, West European)		[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
CP1253 (Greek)		[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	6	[4]	[4]	[6]	[6]	[6]	[4]
CP1254 (Latin 5, Turkish)		[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	6	[4]	[4]	[6]	[6]	[6]	[4]
CP 1257 (Baltic)		[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	6	[4]	[4]	[6]	[6]	[6]	[4]

[1] descenders
[2] standard
[3] at the moment not available, can be replaced by vector fonts (ID3; ID11)
[4] on demand, beginning with version 1.41a
[5] on demand, only 200 dpi printers
[6] not available

Beginning with version 1.41a different character sets were offered but as default the printers are equipped with Latin 1.

Following languages are supported:

Afrikaans	Finnish	Polish
Albanian	French	Portuguese
Basque	German	Romanian
Belarusian	Greek (modern,	Russian
Bulgarian	Hungarian	Serbian
Catalan	Icelandic	Slovak
Croatian	Indonesian	Slovenian
Czech	Italian	Spanish
Danish	Latvian	Swahili
Dutch	Lithuanian	Swedish
English	Macedonian (FYROM)	Turkish
Estonian	Norwegian (Bokmal)	Ukrainian
Faeroese	Norwegian (Nynorsk)	

Outline of the most important character sets for Central and East European languages

Codepage	**Supported languages**
1251 (Cyrillic)	Russian, Bearusian, Serbian, Bulgarian, Ukrainian, Macedonian
1250 (Latin 2, Central European)	Romanian, Slovak, Hungarian, Slovenian, Croatian, Serbian, Polish, Czech
852 (multilingual, East European)	Polish, Czech, Romanian, Slovak, Hungarian, Slovenian, Croatian, Serbian
1257 (Baltic)	Estonian, Latvian, Lithuanian

12.1 International ANSI Character Set

ANSI	Dec.	HEX	ANSI	Dec.	HEX	ANSI	Dec.	HEX	ANSI	Dec.	HEX	ANSI	Dec.	HEX
SP	32	20	Q	81	51	‚	130	82	³	179	B3	ä	228	E4
!	33	21	R	82	52	*ƒ*	131	83	´	180	B4	å	229	E5
"	34	22	S	83	53	„	132	84	µ	181	B5	æ	230	E6
#	35	23	T	84	54	...	133	85	¶	182	B6	ç	231	E7
$	36	24	U	85	55	†	134	86	·	183	B7	è	232	E8
%	37	25	V	86	56	‡	135	87	¸	184	B8	é	233	E9
&	38	26	W	87	57	ˆ	136	88	¹	185	B9	ê	234	EA
'	39	27	X	88	58	‰	137	89	º	186	BA	ë	235	EB
(	40	28	Y	89	59	Š	138	8A	»	187	BB	ì	236	EC
)	41	29	Z	90	5A	‹	139	8B	¼	188	BC	í	237	ED
*	42	2A	[	91	5B	Œ	140	8C	½	189	BD	î	238	EE
+	43	2B	\	92	5C		141	8D	¾	190	BE	ï	239	EF
,	44	2C	]	93	5D	Ž	142	8E	¿	191	BF	ð	240	F0
-	45	2D	^	94	5E		143	8F	À	192	C0	ñ	241	F1
.	46	2E	_	95	5F		144	90	Á	193	C1	ò	242	F2
/	47	2F	`	96	60	‘	145	91	Â	194	C2	ó	243	F3
0	48	30	a	97	61	’	146	92	Ã	195	C3	ô	244	F4
1	49	31	b	98	62	“	147	93	Ä	196	C4	õ	245	F5
2	50	32	c	99	63	”	148	94	Å	197	C5	ö	246	F6
3	51	33	d	100	64	•	149	95	Æ	198	C6	÷	247	F7
4	52	34	e	101	65	–	150	96	Ç	199	C7	ø	248	F8
5	53	35	f	102	66	—	151	97	È	200	C8	ù	249	F9
6	54	36	g	103	67	˜	152	98	É	201	C9	ú	250	FA
7	55	37	h	104	68	™	153	99	Ê	202	CA	û	251	FB
8	56	38	i	105	69	š	154	9A	Ë	203	CB	ü	252	FC
9	57	39	j	106	6A	›	155	9B	Ì	204	CC	ý	253	FD
:	58	3A	k	107	6B	œ	156	9C	Í	205	CD	þ	254	FE
;	59	3B	l	108	6C		157	9D	Î	206	CE	ÿ	255	FF
<	60	3C	m	109	6D	ž	158	9E	Ï	207	CF			
=	61	3D	n	110	6E	Ÿ	159	9F	Ð	208	D0			
>	62	3E	o	111	6F		160	A0	Ñ	209	D1			
?	63	3F	p	112	70	¡	161	A1	Ò	210	D2			
@	64	40	q	113	71	¢	162	A2	Ó	211	D3			
A	65	41	r	114	72	£	163	A3	Ô	212	D4			
B	66	42	s	115	73	¤	164	A4	Õ	213	D5			
C	67	43	t	116	74	¥	165	A5	Ö	214	D6			
D	68	44	u	117	75	¦	166	A6	×	215	D7			
E	69	45	v	118	76	§	167	A7	Ø	216	D8			
F	70	46	w	119	77	¨	168	A8	Ù	217	D9			
G	71	47	x	120	78	©	169	A9	Ú	218	DA			
H	72	48	y	121	79	ª	170	AA	Û	219	DB			
I	73	49	z	122	7A	«	171	AB	Ü	220	DC			
J	74	4A	{	123	7B	¬	172	AC	Ý	221	DD			
K	75	4B	¦	124	7C	-	173	AD	Þ	222	DE			
L	76	4C	}	125	7D	®	174	AE	ß	223	DF			
M	77	4D	~	126	7E	¯	175	AF	à	224	E0			
N	78	4E		127	7F	°	176	B0	á	225	E1			
O	79	4F	€	128	80	±	177	B1	â	226	E2			
P	80	50		129	81	²	178	B2	ã	227	E3			

12.2 Codepage 437

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179		228	
33	!	82	R	131	â	180		229	
34	'	83	S	132	ä	181		230	µ
35	#	84	T	133	à	182		231	
36	$	85	U	134	å	183		232	
37	%	86	V	135	ç	184		233	
38	&	87	W	136	ê	185		234	
39	'	88	X	137	ë	186		235	
40	(	89	Y	138	è	187		236	
41	)	90	Z	139	ï	188		237	Ø
42	*	91	[	140	î	189		238	
43	+	92	\	141	ì	190		239	
44	,	93	]	142	Ä	191		240	
45	-	94	^	143	Å	192		241	
46	.	95	_	144	É	193		242	
47	/	96	`	145	æ	194		243	
48	0	97	a	146	Æ	195		244	
49	1	98	b	147	ô	196		245	
50	2	99	c	148	ö	197		246	
51	3	100	d	149	ò	198		247	
52	4	101	e	150	û	199		248	°
53	5	102	f	151	ù	200		249	
54	6	103	g	152	ÿ	201		250	
55	7	104	h	153	Ö	202		251	
56	8	105	i	154	Ü	203		252	
57	9	106	j	155	¢	204		253	
58	:	107	k	156	£	205		254	
59	;	108	l	157	¥	206		255	
60	<	109	m	158		207			
61	=	110	n	159		208			
62	>	111	o	160	á	209			
63	?	112	p	161	í	210			
64	@	113	q	162	ó	211			
65	A	114	r	163	ú	212			
66	B	115	s	164	ñ	213	€		
67	C	116	t	165	Ñ	214			
68	D	117	u	166		215			
69	E	118	v	167	º	216			
70	F	119	w	168		217			
71	G	120	x	169		218			
72	H	121	y	170		219			
73	I	122	z	171	½	220			
74	J	123	{	172	¼	221			
75	K	124	¦	173		222			
76	L	125	}	174	«	223			
77	M	126	~	175	»	224			
78	N	127		176		225	ß		
79	O	128	Ç	177		226			
80	P	129	ü	178		227			

12.3 Codepage 850

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179		228	õ
33	!	82	R	131	â	180	Á	229	Õ
34	'	83	S	132	ä	181	Â	230	µ
35	#	84	T	133	à	182	À	231	
36	$	85	U	134	å	183	©	232	
37	%	86	V	135	ç	184		233	Ú
38	&	87	W	136	ê	185		234	Û
39	'	88	X	137	ë	186		235	Ù
40	(	89	Y	138	è	187		236	
41	)	90	Z	139	ï	188	¢	237	
42	*	91	[	140	î	189	¥	238	
43	+	92	\	141	ì	190		239	
44	,	93	]	142	Ä	191		240	
45	-	94	^	143	Å	192		241	
46	.	95	_	144	É	193		242	
47	/	96	`	145	æ	194		243	¾
48	0	97	a	146	Æ	195		244	¶
49	1	98	b	147	ô	196		245	§
50	2	99	c	148	ö	197		246	
51	3	100	d	149	ò	198	ã	247	
52	4	101	e	150	û	199	Ã	248	°
53	5	102	f	151	ù	200		249	
54	6	103	g	152	ÿ	201		250	
55	7	104	h	153	Ö	202		251	
56	8	105	i	154	Ü	203		252	
57	9	106	j	155	ø	204		253	
58	:	107	k	156	£	205		254	
59	;	108	l	157	Ø	206		255	
60	<	109	m	158		207			
61	=	110	n	159		208			
62	>	111	o	160	á	209			
63	?	112	p	161	í	210	Ê		
64	@	113	q	162	ó	211	Ë		
65	A	114	r	163	ú	212	È		
66	B	115	s	164	ñ	213			
67	C	116	t	165	Ñ	214	Í		
68	D	117	u	166		215	Î		
69	E	118	v	167	º	216	Ï		
70	F	119	w	168		217			
71	G	120	x	169	®	218			
72	H	121	y	170		219			
73	I	122	z	171	½	220			
74	J	123	{	172	¼	221			
75	K	124	|	173		222	Ì		
76	L	125	}	174	«	223			
77	M	126	~	175	»	224	Ó		
78	N	127		176		225	ß		
79	O	128	Ç	177		226	Ô		
80	P	129	ü	178		227	Ò		

12.4 Codepage 852 (optional)

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179		228	ń
33	!	82	R	131	â	180		229	ň
34	'	83	S	132	ä	181	Á	230	Š
35	#	84	T	133	ů	182	Â	231	š
36	$	85	U	134	ć	183	Ě	232	Ŕ
37	%	86	V	135	ç	184	Ş	233	Ú
38	&	87	W	136	ł	185		234	ŕ
39	'	88	X	137	ë	186		235	Ũ
40	(	89	Y	138	Ő	187		236	ý
41	)	90	Z	139	ő	188		237	Ý
42	*	91	[	140	î	189	Ż	238	ţ
43	+	92	\	141	Ź	190	ż	239	´
44	,	93	]	142	Ä	191		240	-
45	-	94	^	143	Ć	192		241	'
46	.	95	¯	144	É	193		242	
47	/	96	`	145	Ĺ	194		243	
48	0	97	a	146	Í	195		244	¯
49	1	98	b	147	ô	196		245	§
50	2	99	c	148	ö	197		246	÷
51	3	100	d	149	L	198	Ă	247	¸
52	4	101	e	150	l	199	ă	248	°
53	5	102	f	151	Ś	200		249	¨
54	6	103	g	152	ś	201		250	·
55	7	104	h	153	Ö	202		251	ũ
56	8	105	i	154	Ü	203		252	Ř
57	9	106	j	155	Ť	204		253	ř
58	:	107	k	156	t	205		254	
59	;	108	l	157	Ł	206		255	
60	<	109	m	158	×	207			
61	=	110	n	159	č	208	đ		
62	>	111	o	160	á	209	Đ		
63	?	112	p	161	Í	210	Ď		
64	@	113	q	162	ó	211	Ë		
65	A	114	r	163	ú	212	d		
66	B	115	s	164	Ą	213	Ň		
67	C	116	t	165	ą	214	í		
68	D	117	u	166	Ž	215	î		
69	E	118	v	167	ž	216	ě		
70	F	119	w	168	Ę	217			
71	G	120	x	169	ę	218			
72	H	121	y	170		219			
73	I	122	z	171	ź	220			
74	J	123	{	172	Č	221	Ţ		
75	K	124	128	173	ş	222	Ů		
76	L	125	129	174	«	223			
77	M	126	~	175	»	224	Ó		
78	N	127	⌂	176		225	ß		
79	O	128	Ç	177		226	Ô		
80	P	129	ű	178		227	Ń		

12.5 Codepage 857 (optional)

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179		228	õ
33	!	82	R	131	â	180		229	Õ
34	'	83	S	132	ä	181	Á	230	µ
35	#	84	T	133	à	182	Ă	231	R
36	$	85	U	134	å	183	À	232	µ
37	%	86	V	135	ç	184	©	233	Ú
38	&	87	W	136	ê	185		234	Û
39	'	88	X	137	ë	186		235	Ù
40	(	89	Y	138	è	187		236	ì
41	)	90	Z	139	ï	188		237	ÿ
42	*	91	[	140	î	189	¢	238	¯
43	+	92	\	141	ı	190	¥	239	´
44	,	93	]	142	Ä	191		240	-
45	-	94	^	143	Å	192		241	±
46	.	95	_	144	É	193		242	
47	/	96	`	145	æ	194		243	¾
48	0	97	a	146	Æ	195		244	¶
49	1	98	b	147	ô	196		245	§
50	2	99	c	148	ö	197		246	÷
51	3	100	d	149	ò	198	ã	247	¸
52	4	101	e	150	û	199	Ã	248	°
53	5	102	f	151	ù	200		249	¨
54	6	103	g	152	İ	201		250	·
55	7	104	h	153	Ö	202		251	¹
56	8	105	i	154	Ü	203		252	³
57	9	106	j	155	ø	204		253	²
58	:	107	k	156	£	205		254	
59	;	108	l	157	Ø	206		255	
60	<	109	m	158	Ş	207			
61	=	110	n	159	ş	208	º		
62	>	111	o	160	á	209	ª		
63	?	112	p	161	í	210	Ê		
64	@	113	q	162	ó	211	Ë		
65	A	114	r	163	ú	212	È		
66	B	115	s	164	ñ	213	Ň		
67	C	116	t	165	Ñ	214	í		
68	D	117	u	166	Ğ	215	î		
69	E	118	v	167	ğ	216	ï		
70	F	119	w	168	¿	217			
71	G	120	x	169	®	218			
72	H	121	y	170		219			
73	I	122	z	171	½	220			
74	J	123	{	172	¼	221	¦		
75	K	124	|	173	¡	222	Ì		
76	L	125	}	174	«	223			
77	M	126	~	175	»	224	Ó		
78	N	127	⌂	176		225	ß		
79	O	128	Ç	177		226	Ô		
80	P	129	ü	178		227	Ò		

12.6 GEM German

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179	¢	228	€
33	!	82	R	131	â	180	œ	229	
34	'	83	S	132	ä	181	Œ	230	µ
35	#	84	T	133	à	182	À	231	
36	$	85	U	134	å	183	Ã	232	
37	%	86	V	135	ç	184	Õ	233	
38	&	87	W	136	ê	185	§	234	
39	'	88	X	137	ë	186	?	235	
40	(	89	Y	138	è	187	†	236	
41	)	90	Z	139	ï	188	¶	237	Ø
42	*	91	Ä	140	î	189	©	238	
43	+	92	Ö	141	ì	190	®	239	
44	,	93	Ü	142	Ä	191	™	240	
45	-	94	\	143	Å	192		241	
46	.	95	_	144	É	193	...	242	
47	/	96	`	145	æ	194	‰	243	
48	0	97	a	146	Æ	195	•	244	
49	1	98	b	147	ô	196	—	245	
50	2	99	c	148	ö	197	–	246	
51	3	100	d	149	ò	198	º	247	
52	4	101	e	150	û	199	Á	248	°
53	5	102	f	151	ù	200	Â	249	
54	6	103	g	152	ÿ	201	È	250	
55	7	104	h	153	Ö	202	Ê	251	¹
56	8	105	i	154	Ü	203	Ë	252	³
57	9	106	j	155	ø	204	Ì	253	²
58	:	107	k	156	£	205	Í	254	
59	;	108	l	157	Ø	206	Î	255	
60	<	109	m	158	~	207	Ï		
61	=	110	n	159	_	208	Ò		
62	>	111	o	160	á	209	Ó		
63	?	112	p	161	í	210	Ô		
64	@	113	q	162	ó	211			
65	A	114	r	163	ú	212			
66	B	115	s	164	ñ	213	Ù		
67	C	116	t	165	Ñ	214	Ú		
68	D	117	u	166		215	Û		
69	E	118	v	167		216	Ÿ		
70	F	119	w	168		217			
71	G	120	x	169	'	218			
72	H	121	y	170	”	219			
73	I	122	z	171	‹	220			
74	J	123	ä	172	›	221			
75	K	124	ö	173		222			
76	L	125	ü	174	«	223	µ		
77	M	126	ß	175	»	224	\		
78	N	127	º	176	ã	225	ß		
79	O	128	Ç	177	õ	226			
80	P	129	ü	178	¥	227			

12.7 GEM English

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179	¢	228	€
33	!	82	R	131	â	180	œ	229	
34	'	83	S	132	ä	181	Œ	230	µ
35	#	84	T	133	à	182	À	231	
36	$	85	U	134	å	183	Ã	232	
37	%	86	V	135	ç	184	Õ	233	
38	&	87	W	136	ê	185	§	234	
39	'	88	X	137	ë	186	?	235	
40	(	89	Y	138	è	187	†	236	
41	)	90	Z	139	ï	188	¶	237	Ø
42	*	91	Ä	140	î	189	©	238	
43	+	92	-	141	ì	190	®	239	
44	,	93	Ü	142	Ä	191	™	240	
45	-	94	¼	143	Å	192		241	
46	.	95		144	É	193	...	242	
47	/	96	`	145	æ	194	‰	243	
48	0	97	a	146	Æ	195	•	244	
49	1	98	b	147	ô	196	—	245	
50	2	99	c	148	ö	197	–	246	
51	3	100	d	149	ò	198	°	247	
52	4	101	e	150	û	199	Á	248	°
53	5	102	f	151	ù	200	Â	249	
54	6	103	g	152	ÿ	201	È	250	
55	7	104	h	153	Ö	202	Ê	251	
56	8	105	i	154	Ü	203	Ë	252	
57	9	106	j	155	ø	204	Ì	253	
58	:	107	k	156	£	205	Í	254	
59	;	108	l	157	Ø	206	Î	255	
60	<	109	m	158	~	207	Ï		
61	=	110	n	159	_	208	Ò		
62	>	111	o	160	á	209	Ó		
63	?	112	p	161	í	210	Ô		
64	£	113	q	162	ó	211			
65	A	114	r	163	ú	212			
66	B	115	s	164	ñ	213	Ù		
67	C	116	t	165	Ñ	214	Ú		
68	D	117	u	166	¼	215	Û		
69	E	118	v	167	½	216	Ÿ		
70	F	119	w	168	¾	217			
71	G	120	x	169	'	218			
72	H	121	y	170	”	219			
73	I	122	z	171	‹	220			
74	J	123	ä	172	›	221			
75	K	124	ö	173		222			
76	L	125	ü	174	«	223	µ		
77	M	126	¾	175	»	224	\		
78	N	127		176	ã	225	ß		
79	O	128	Ç	177	õ	226			
80	P	129	ü	178	¥	227			

12.8 GEM French

Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179	¢	228	€
33	!	82	R	131	â	180	œ	229	
34	'	83	S	132	ä	181	Œ	230	µ
35	#	84	T	133	à	182	À	231	
36	$	85	U	134	å	183	Ã	232	
37	%	86	V	135	ç	184	Õ	233	
38	&	87	W	136	ê	185	§	234	
39	'	88	X	137	ë	186	?	235	
40	(	89	Y	138	è	187	†	236	
41	)	90	Z	139	ï	188	¶	237	Ø
42	*	91	ô	140	î	189	©	238	
43	+	92	ç	141	ì	190	®	239	
44	,	93	Ü	142	Ä	191	™	240	
45	-	94	¼	143	Å	192		241	
46	.	95	½	144	É	193	...	242	
47	/	96	¾	145	æ	194	‰	243	
48	0	97	a	146	Æ	195	•	244	
49	1	98	b	147	ô	196	—	245	
50	2	99	c	148	ö	197	–	246	
51	3	100	d	149	ò	198	°	247	
52	4	101	e	150	û	199	Á	248	°
53	5	102	f	151	ù	200	Â	249	
54	6	103	g	152	ÿ	201	È	250	
55	7	104	h	153	Ö	202	Ê	251	
56	8	105	i	154	Ü	203	Ë	252	
57	9	106	j	155	ø	204	Ì	253	
58	:	107	k	156	£	205	Í	254	
59	;	108	l	157	Ø	206	Î	255	
60	<	109	m	158	~	207	Ï		
61	=	110	n	159	_	208	Ò		
62	>	111	o	160	á	209	Ó		
63	?	112	p	161	í	210	Ô		
64	à	113	q	162	ó	211			
65	A	114	r	163	ú	212			
66	B	115	s	164	ñ	213	Ù		
67	C	116	t	165	Ñ	214	Ú		
68	D	117	u	166	¼	215	Û		
69	E	118	v	167	½	216	Ÿ		
70	F	119	w	168	¾	217			
71	G	120	x	169	'	218			
72	H	121	y	170	”	219			
73	I	122	z	171	‹	220			
74	J	123	é	172	›	221			
75	K	124	ñ	173		222			
76	L	125	è	174	«	223	µ		
77	M	126	ß	175	»	224	\		
78	N	127	º	176	ã	225	ß		
79	O	128	Ç	177	õ	226			
80	P	129	ü	178	¥	227			

12.9 GEM Swedish

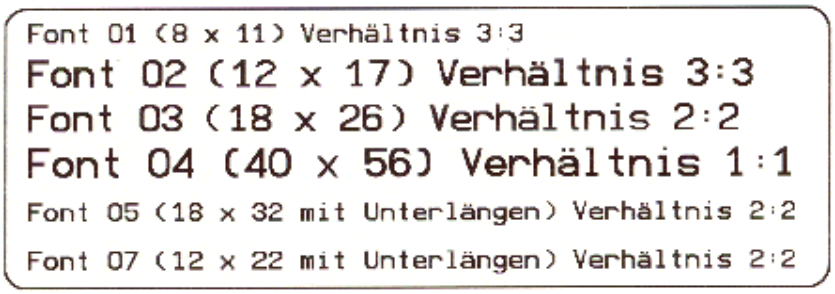
Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179	¢	228	€
33	!	82	R	131	â	180	œ	229	
34	'	83	S	132	ä	181	Œ	230	µ
35	#	84	T	133	à	182	À	231	
36	$	85	U	134	å	183	Ã	232	
37	%	86	V	135	ç	184	Õ	233	
38	&	87	W	136	ê	185	§	234	
39	'	88	X	137	ë	186	?	235	
40	(	89	Y	138	è	187	†	236	
41	)	90	Z	139	ï	188	¶	237	Ø
42	*	91	Ä	140	î	189	©	238	
43	+	92	Ö	141	ì	190	®	239	
44	,	93	Å	142	Ä	191	™	240	
45	-	94	Ü	143	Å	192		241	
46	.	95	_	144	É	193	...	242	
47	/	96	é	145	æ	194	‰	243	
48	0	97	a	146	Æ	195	•	244	
49	1	98	b	147	ô	196	—	245	
50	2	99	c	148	ö	197	–	246	
51	3	100	d	149	ò	198	°	247	
52	4	101	e	150	û	199	Á	248	°
53	5	102	f	151	ù	200	Â	249	
54	6	103	g	152	ÿ	201	È	250	
55	7	104	h	153	Ö	202	Ê	251	
56	8	105	i	154	Ü	203	Ë	252	
57	9	106	j	155	ø	204	Ì	253	
58	:	107	k	156	£	205	Í	254	
59	;	108	l	157	Ø	206	Î	255	
60	<	109	m	158	~	207	Ï		
61	=	110	n	159	_	208	Ò		
62	>	111	o	160	á	209	Ó		
63	?	112	p	161	í	210	Ô		
64	@	113	q	162	ó	211			
65	A	114	r	163	ú	212			
66	B	115	s	164	ñ	213	Ù		
67	C	116	t	165	Ñ	214	Ú		
68	D	117	u	166	¼	215	Û		
69	E	118	v	167	½	216	Ÿ		
70	F	119	w	168	¾	217			
71	G	120	x	169	'	218			
72	H	121	y	170	”	219			
73	I	122	z	171	‹	220			
74	J	123	ä	172	›	221			
75	K	124	ö	173		222			
76	L	125	å	174	«	223	µ		
77	M	126	ü	175	»	224	\		
78	N	127	°	176	ã	225	ß		
79	O	128	Ç	177	õ	226			
80	P	129	ü	178	¥	227			

12.10 GEM Danish

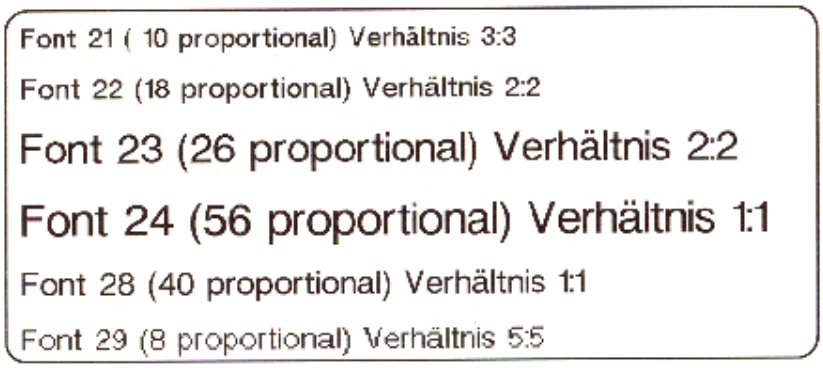
Dec.		Dec.		Dec.		Dec.		Dec.	
32		81	Q	130	é	179	¢	228	€
33	!	82	R	131	â	180	œ	229	
34	'	83	S	132	ä	181	Œ	230	µ
35	#	84	T	133	à	182	À	231	
36	$	85	U	134	å	183	Ã	232	
37	%	86	V	135	ç	184	Õ	233	
38	&	87	W	136	ê	185	§	234	
39	'	88	X	137	ë	186	?	235	
40	(	89	Y	138	è	187	†	236	
41	)	90	Z	139	ï	188	¶	237	Ø
42	*	91	Æ	140	î	189	©	238	
43	*	92	Ø	141	ì	190	®	239	
44	,	93	Å	142	Ä	191	™	240	
45	_	94	Ö	143	Å	192		241	
46	.	95	¯	144	É	193	...	242	
47	/	96	`	145	æ	194	‰	243	
48	0	97	a	146	Æ	195	•	244	
49	1	98	b	147	ô	196	—	245	
50	2	99	c	148	ö	197	–	246	
51	3	100	d	149	ò	198	°	247	
52	4	101	e	150	û	199	Á	248	°
53	5	102	f	151	ù	200	Â	249	
54	6	103	g	152	ÿ	201	È	250	
55	7	104	h	153	Ö	202	Ê	251	
56	8	105	i	154	Ü	203	Ë	252	
57	9	106	j	155	ø	204	Ì	253	
58	:	107	k	156	£	205	Í	254	
59	;	108	l	157	Ø	206	Î	255	
60	<	109	m	158	~	207	Ï		
61	=	110	n	159	_	208	Ò		
62	>	111	o	160	á	209	Ó		
63	?	112	p	161	í	210	Ô		
64	ä	113	q	162	ó	211			
65	A	114	r	163	ú	212			
66	B	115	s	164	ñ	213	Ù		
67	C	116	t	165	Ñ	214	Ú		
68	D	117	u	166	¼	215	Û		
69	E	118	v	167	½	216	Ÿ		
70	F	119	w	168	¾	217			
71	G	120	x	169	'	218			
72	H	121	y	170	”	219			
73	I	122	z	171	‹	220			
74	J	123	æ	172	›	221			
75	K	124	ø	173		222			
76	L	125	å	174	«	223	µ		
77	M	126	Ü	175	»	224	\		
78	N	127	°	176	ã	225			
79	O	128	Ç	177	õ	226	ß		
80	P	129	ü	178	¥	227			

13 Font Examples

13.1 Bitmap Fonts (Not Proportional)



13.2 Bitmap Fonts (Proportional)



13.3 Vector Fonts

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