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English

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# Operating manual

Thermal Transfer Printer  
Optimo type

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# 1. Installation

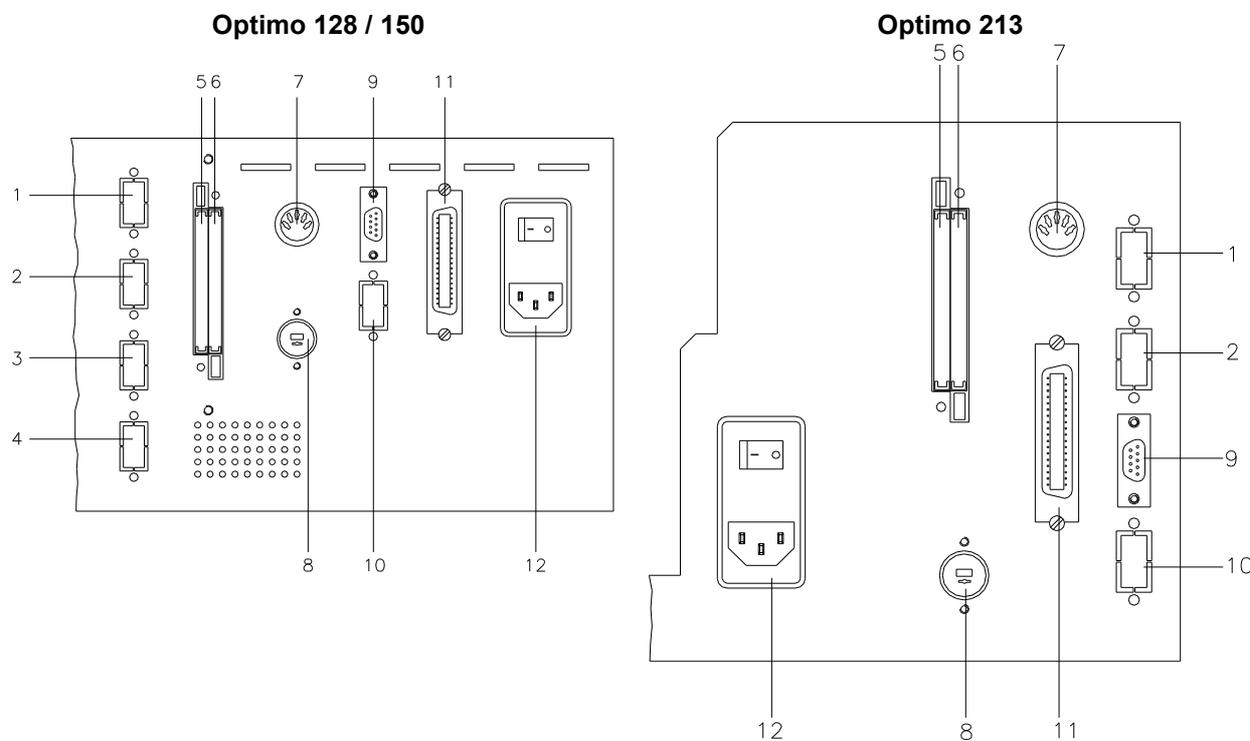
**Attention:** Before initial operating the operating conditions catalogued in "chapter 29" have to be granted.

The purpose of this machine is to print labels.

Put the printer onto a suitable table, avoiding exposure to bright sunlight. Please avoid high humidity and dust environment. Connect the power line on the rear of the unit.

Please operate printer only with the original cable with safety contact.

**Attention:** When servicing or repairing, the power switch has to be turned off and the cable disconnected.



- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1 = external input I</li> <li>2 = external output I</li> <li>3 = external input II</li> <li>4 = external output II</li> <li>5 = Memory-Card slot A</li> <li>6 = Memory-Card slot B</li> </ul> | <ul style="list-style-type: none"> <li>7 = connection for PC keyboard</li> <li>8 = connection for rewinding unit</li> <li><b>Attention:</b><br/>Only suitable for PR 45, <u>not</u> for PR 52!</li> <li>9 = serial interface RS 232</li> <li>10 = connection for serial interface RS 422 / RS 485 or second RS 232</li> <li>11 = Centronics interface</li> <li>12 = power supply with ON/OFF switch</li> </ul> |
|--|--|

## 2. Initial Operation

- Turn on the power switch on the rear of the machine.
- After turning on the printer the basic menu will appear with indication of type and version of the printer.
- When connected correctly, the labels will be automatically measured. In case of need this function can be turned off in menu "Printer initialisation" of the function menu.
- The measurement can be stopped by activating any key of the foil keyboard. The user has to be aware that at least two labels will be completely advanced to ensure correct measurement. However this does not apply when printing with continuous paper.

When measuring the length of label and gap by the printer it is possible that little differences occur. If necessary the length of label and gap can be set manually in the menu "Printer initialisation" of the function menu.

- Depending on the standard of the printer the label length varies between 190 mm and 1820 mm, see chapter "27. Technical data".
- Load labels and transfer ribbon as described in the following chapters.
- Now the entry can be started.

- basic menu



- function menu



- menu: entry of text



- menu: entry of barcode



- menu: entry of no. of pieces

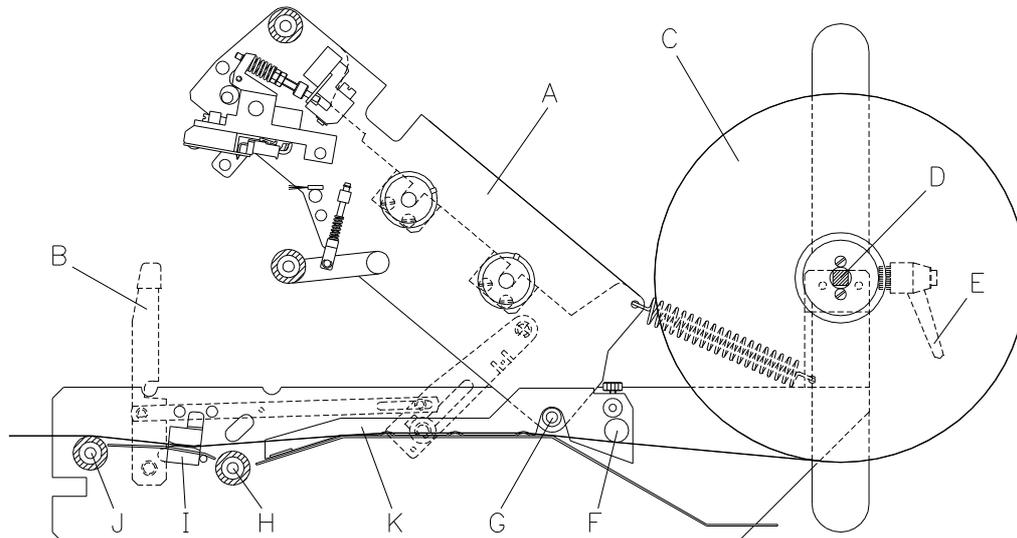


- memory menu

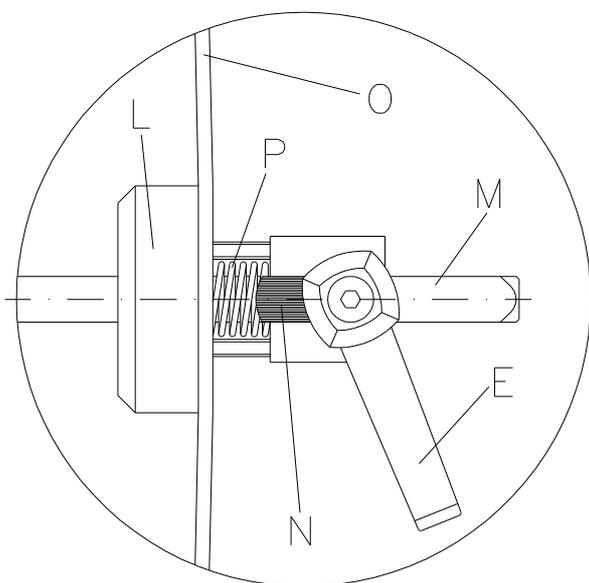


### 3. Loading of labels

#### 3.1. Unwinding unit



- ▷ Open cover on the right side.
- ▷ Open up print module (A). Therefore pull the right lever (B) (with red cover) forward.  
**Caution!** Top of print module will automatically turn up!
- ▷ Loading of label roll with inner winding (C) onto the unwinder (D). With the terminal lever the lateral base position of the label can be adjusted at the left roll holder. In case the lever strikes the label roll, lift the lever to move it in any position you like.



- 
- ▷ Push the external roll holder (L) to the roll bearing shaft (M) towards the label roll. Turn the barrier (N) as shown in the detailed illustration towards the roll fastening plate (O). Shift the roll holder towards the label roll until the barrier (N) nudges to the roll fastening plate (O). Resecure terminal lever (E) again. Press barrier (N) up or down to make the spring (P).

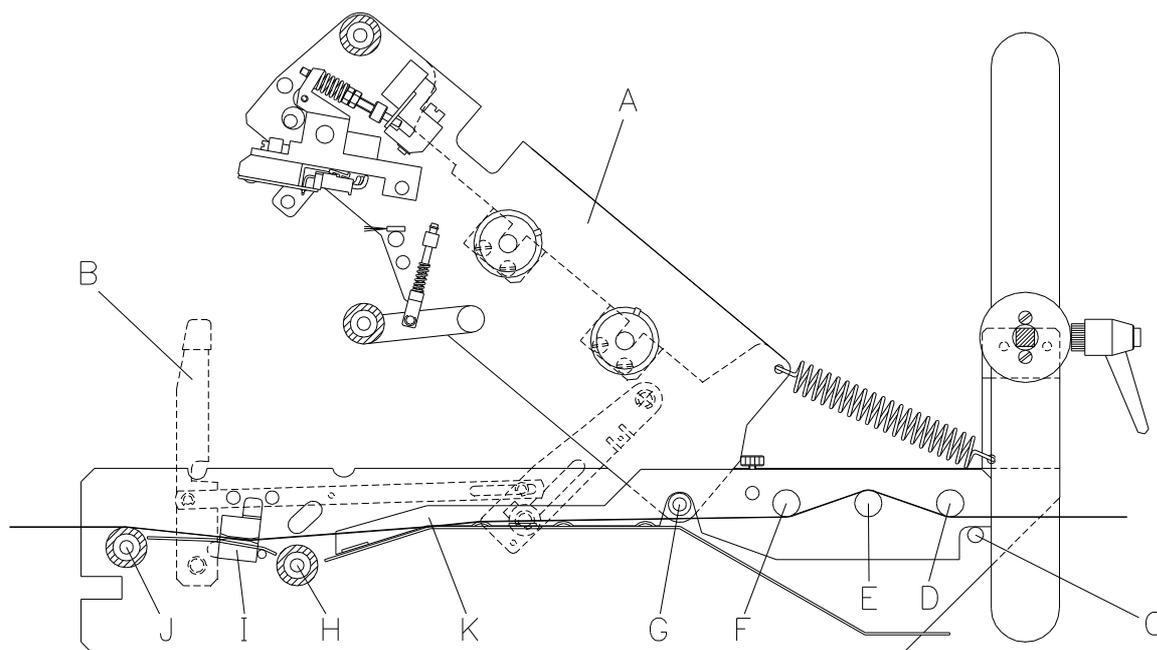
**Note:** When using barrier (N) as limit stop the label roll is always braked with appropriate and necessary primary potential. In case the label roll is not res. is braked too strong this could lead to slippage in the label transport. This results in non-printed labels or wrong positioning of the first print line.

- ▷ Lead the label-band (with label side up) underneath the shafts (F) and (G), through the transport rolls (H) and the photocell (I), over the printhead roll (J) and through the label exit of the case.
- ▷ Adjust label guiding with label guiding device (K) and the two scales.
- ▷ Adjust position of photocell (I).
- ▷ Close print module (A). Therefore pull right lever (B) forward and put the top of the print module down until it snaps. Lock the print module by pushing it down.
- ▷ Measuring of label.

**Note:** To load labels with a width of more than 155 mm the complete label guiding has to be dismantled!

- ▷ Loosen the two red knurled screws.
- ▷ Move the label guidings to the middle and fasten the knurled screws.
- ▷ Unscrew black knurled screw on the left side, lead the shaft to the left side and take off the complete label guiding.
- ▷ To reinstall insert the shaft on the right and left side, fasten the black knurled screw and adjust label guidings accordingly.

## 3.2. Leporello guiding



- ▷ Open cover on the right side.
- ▷ Open up print module (A). Therefore pull the right lever (B) (with red cover) forward.  
**Caution!** Top of print module will automatically turn up!
- ▷ Lead the label-band with inner winding (with label side up) over the guiding shaft (C), underneath device (D), over the guiding shaft (E) and underneath device (F). Lead the label-band underneath shaft (G), over the roll (H), through the photocell (I) over the print roll (J) and through the label exit of the case.
- ▷ Adjust the label guiding (K) with the label guiding device and the two scales.
- ▷ Adjust position of photocell (I).
- ▷ Close print module (A). Therefore pull right lever (B) forward and put the top of the print module down until it snaps. Lock the print module by pushing it down.
- ▷ Measuring of label.

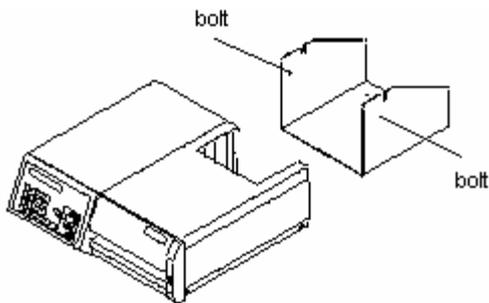
**Note:** To load labels with a width of more than 155 mm the complete label guiding has to be dismantled!

- ▷ Loosen the two red knurled screws.
- ▷ Move the label guidings to the middle and fasten the knurled screws.
- ▷ Unscrew black knurled screw on the left side, lead the shaft to the left side and take off the complete label guiding.
- ▷ To reinstall insert the shaft on the right and left side, fasten the black knurled screw and adjust label guidings accordingly.

## 4. Unwinding unit PA 50

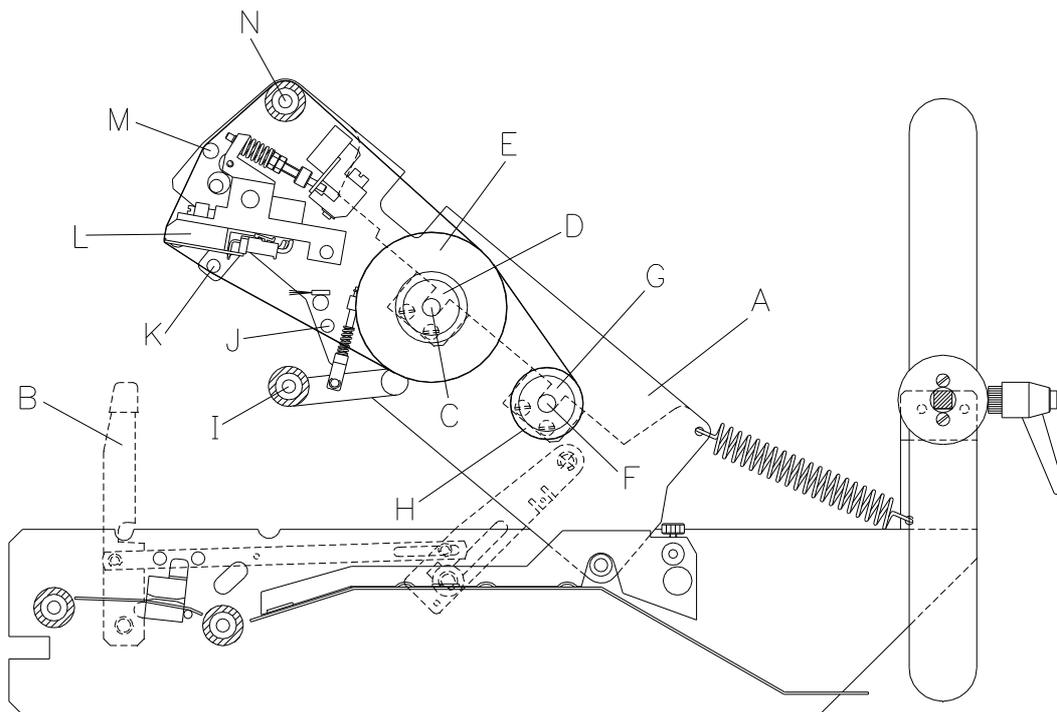
With the unwinding unit PA 50 label rolls with a maximum outer diameter of 320 mm can be loaded.

- ▷ To install the unwinding unit PA 50 the complete unwinding shaft has to be taken off.
- ▷ Connect unwinding unit to the printer as shown in the sketch. Hereby the two bolts on the right and left side of the unwinding unit have to be placed into the cutouts for the unwinding unit at the printer.



- ▷ Insert unwinding shaft into unwinding unit.
- ▷ Load labels (see chapter "3.1. Unwinding unit").

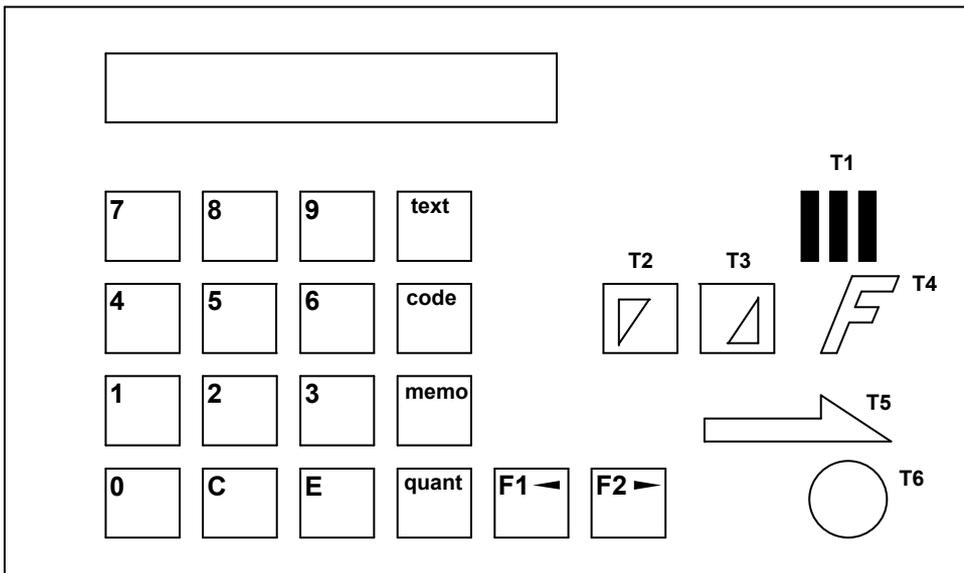
## 5. Loading of transfer ribbon



- ▷ Open cover on the right side.
- ▷ Open up print module (A). Therefore pull the right lever (B) (with red cover) forward.  
**Caution!** Top of print module will automatically turn up!
- ▷ Turn the unwinder (C) upwards and remove the right roll holder (D).
- ▷ Load transfer ribbon roll with outer winding (E) onto the unwinder (C), fix it with the roll holder (D) and push unwinding unit down until it snaps.
- ▷ Turn the rewinder (F) upwards and remove the right roll holder (G).
- ▷ Put the rewind mandrel (H) onto the rewinder (F), fix it with the roll holder (G) and push rewinding unit down until it snaps.
- ▷ Pull the transfer ribbon from roll (E) over roll (I), underneath the device (J) and (K), around the printhead (L), over the shaft (M), the tension roll (N) and the ribbon roll (E) and fix the transfer ribbon to the rewinding mandrel (H) with an adhesive tape.
- ▷ Rotate the rewinder 1 - 2 turns manually in clockwise direction to guarantee a wrinkle free ribbon.
- ▷ If necessary move the roll holders (D) or (G). They have to be positioned one behind the other.
- ▷ Close print module (A). Therefore pull the right lever (B) forward and put the top of the print module down until it snaps. Lock the print module by pushing it down.

## 6. Keyboard

### 6.1. Foil keyboard



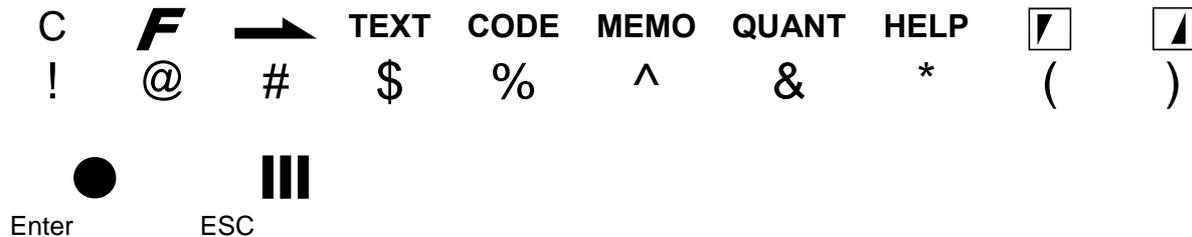
Key		Function
T1	 <b>basic menu/ test print</b>	<ul style="list-style-type: none"> <li>• Outside the basic menu it can be switched back into the basic menu.</li> <li>• When in the basic menu a test print results after activating this key.</li> </ul>
T2	 <b>down</b>	<ul style="list-style-type: none"> <li>• When in mask menu it can be turned back line by line.</li> <li>• Within the function menu data of the corresponding menu items can be decreased step by step.</li> </ul>
T3	 <b>up</b>	<ul style="list-style-type: none"> <li>• When in mask menu you can go ahead line by line.</li> <li>• Within the function menu data of the corresponding menu items can be increased step by step.</li> </ul>
T4	 <b>function menu</b>	<ul style="list-style-type: none"> <li>• With this key you can change into the function menu (see chapter "12. Function menu").</li> </ul>
T5	 <b>feed</b>	<ul style="list-style-type: none"> <li>• In basic menu a feed of 1 label results.</li> <li>• In function menu you can change between all different menu items.</li> </ul>
T6	 <b>start-stop</b>	<ul style="list-style-type: none"> <li>• During print mode the print can be stopped immediately. When activating key "T6" again the printing will be continued. By confirming the "stop" via key 1 the print order will be stopped and no label will be printed again.</li> </ul>

Key		Function
	<b>memory menu</b>	<ul style="list-style-type: none"> <li>When activating this key it is possible to work with the memory card, see chapter "8. Memory-Card".</li> </ul>
	<b>menu: entry of pieces</b>	<ul style="list-style-type: none"> <li>A certain number of labels can be printed when activating this key. By using "T2" and "T3" you can change between number of line and number of pieces. The print will start via key "E" The print will only be started when number of lines / number of pieces &gt; 0.</li> <li>In mask menu with this key the next line can be copied into the next line.</li> <li>In menu "entry of text" with this key single characters can be deleted.</li> </ul>
	<b>menu: entry of text</b>	<ul style="list-style-type: none"> <li>When activating this key you change to the menu "entry of text / entry of label mask".</li> </ul>
	<b>menu: entry of code</b>	<ul style="list-style-type: none"> <li>When activating this key you change to the menu "entry of barcode / entry of label mask".</li> </ul>
	<b>position backward</b>	<ul style="list-style-type: none"> <li>In "entry of text" this key steps one position backward res. to the left.</li> </ul>
	<b>position forward</b>	<ul style="list-style-type: none"> <li>In "entry of text" this key steps one position forward res. to the right.</li> </ul>

## 6.2. PC-Keyboard

### 6.2.1. General

It is possible to connect a PC/AT-keyboard to the printer. With this keyboard the printer can be operated in the stand-alone mode.



The keys below are used for entering of text and codes.

### 6.2.2. Connection of the PC-keyboard

The keyboard can be connected directly to the printer. Therefore a five-pin diode plug is provided. As well it is possible to connect the PC-keyboard and a barcode reader together to the printer, by means of an adapter.

### 6.2.3. Operating with PC-keyboard

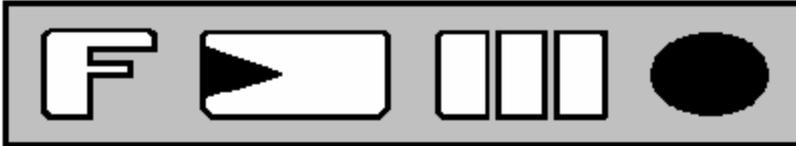
The desired keyboard layout (Germany, Sweden, Spain, Greece, France, England, Republic of Czech) can be selected in function menu under menu item "Printer initialisation > keyboard layout".

The PC-keyboard has more key functions, than can be operated by the printer software; the hatched keys are inoperable when connected to the printer.

- Key codes: Shift + F9 test print res. abort, the same function as .
- Shift + F10 start/stop, the same function as .
- The LED display of NumLock, CapsLock, ScrollLock are not operated.
- Entry of special characters: The ANSI code of the character is entered e.g. "\" - Alt + 92, "]" - Alt + 93

## 6.2.4. Keyboard Optimo 213

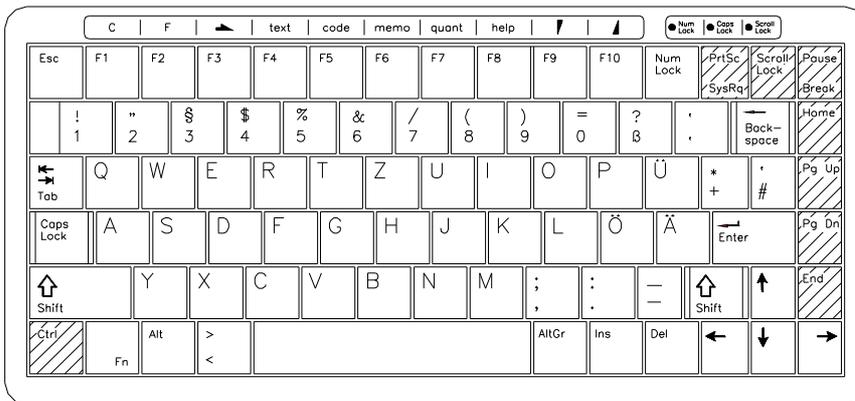
The Optimo 213 has no foil keyboard as shown in chapter "6.1" but can be operated in the same manner by means of the foil keyboard illustrated below and an external keyboard (included in the delivery).



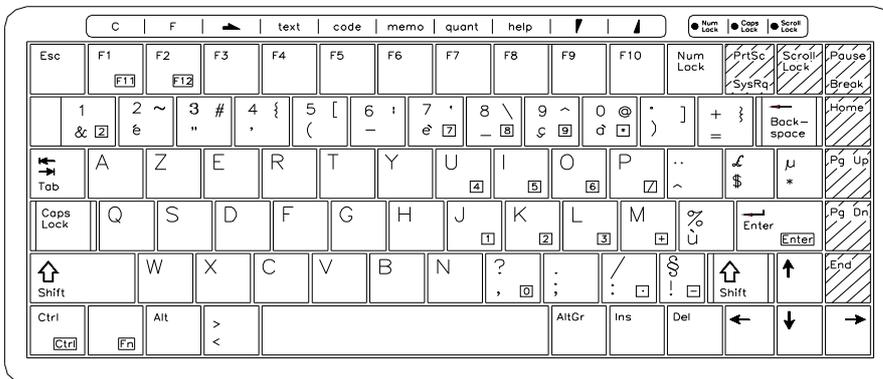
The key  shown in the operating manual corresponds to key 

For connecting and operating with the external PC-keyboard, please see chapter "6.2.2. Connection of the PC-keyboard" res. chapter "6.2.3. Operating with PC-keyboard".

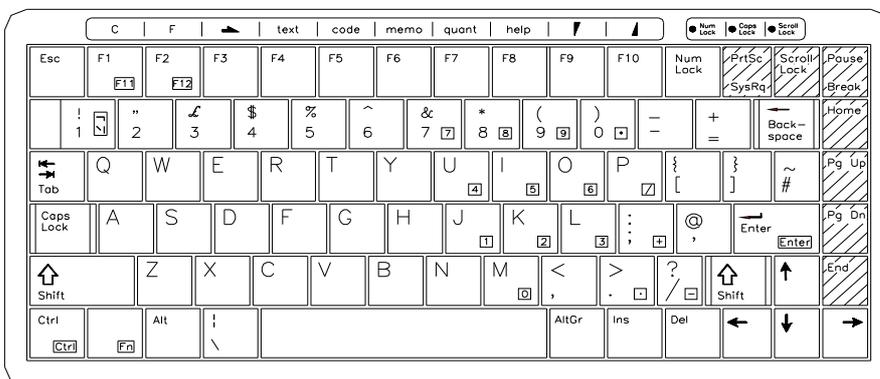
- Germany



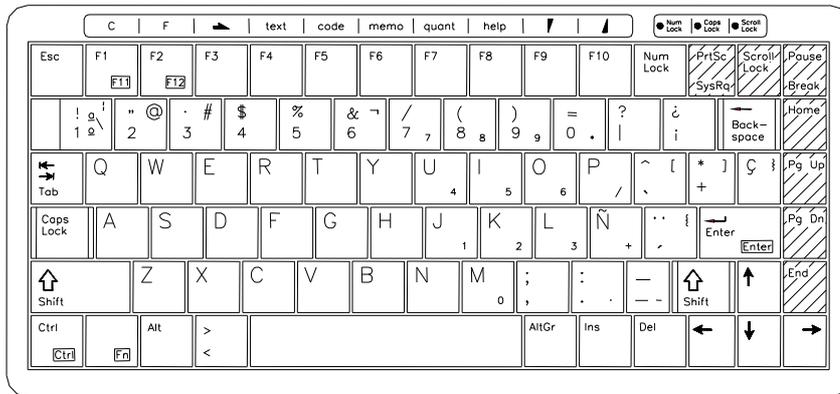
- France



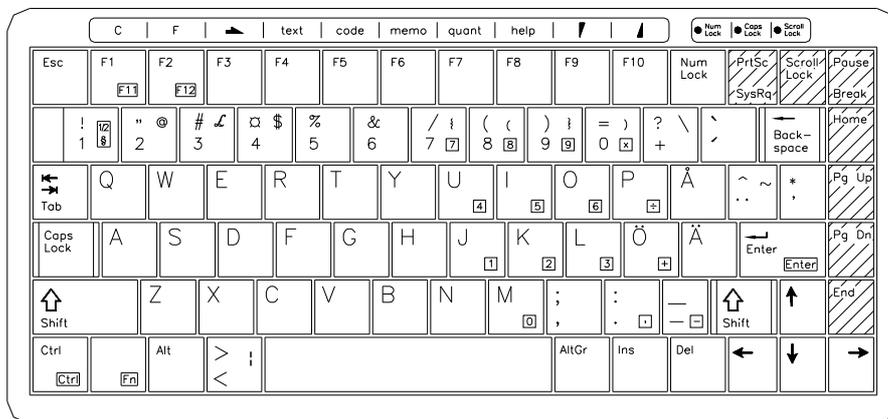
- England



- Spain



- Sweden



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### 6.2.5. Storing of values

The **"Enter"**-key (alphanumeric keyboard) or the **"start-stop"**-key  (foil keyboard) has to be pressed in order to store the values entered when designing a label. When the printer will be switched off the values are still available.

However if the **"Esc"**-key (alphanumeric keyboard) or the function key  (foil keyboard) is pressed the values changed get lost as soon as the printer will be switched off.

### 6.3. Intern. ANSI charset

ANSI	Dec.	HEX												
SP	32	20	Q	81	51		130	82		179	B3	ä	228	E4
!	33	21	R	82	52		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		136	88		185	B9	ê	234	EA
'	39	27	X	88	58	‰	137	89	°	186	BA	ë	235	EB
(	40	28	Y	89	59		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		142	8E		191	BF		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		154	9A	Ë	203	CB	ü	252	FC
9	57	39	j	106	6A	›	155	9B	Ì	204	CC		253	FD
:	58	3A	k	107	6B	œ	156	9C	Í	205	CD		254	FE
:	59	3B	l	108	6C		157	9D	Î	206	CE	ÿ	255	FF
<	60	3C	m	109	6D		158	9E	Ï	207	CF			
=	61	3D	n	110	6E	ÿ	159	9F		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		214	D6			
D	68	44	u	117	75		166	A6	Ö	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		170	AA	Û	219	DB			
I	73	49	z	122	7A	«	171	AB	Ü	220	DC			
J	74	4A	{	123	7B		172	AC		221	DD			
K	75	4B		124	7C		173	AD		222	DE			
L	76	4C	}	125	7D	®	174	AE	?	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		178	B2	ã	227	E3			

## 7. Creation of a label

### 7.1. Text: Bitmaps

#### 7.1.1. Entry of mask

After activating key "text" the following text mask appears on the display:

Y0020	EY:02	T:01	S:02	T
X:020	EX:02	F:03	R:0	1

By activating "Enter" or "E" it can be switched to the next entry.

With the keys   the number of the mask statement can be increased or decreased (number of line).

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of the corresponding line.
- **EY Extension Y**  
Extension of font in direction of "y" (factor 1-9)
- **T Type style of font**  
01 - regular font (pixel font)  
02 - regular font inverse  
10 - rectangle  
11 - line
- **S Number of spaces between two characters**  
min.: 1 x 0,083 mm  
max.: 99 x 0,083 mm
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of the corresponding line.
- **EX Extension X**  
Extension of font in direction of "x" (factor 1-9)
- **F Selection of font**

bitmap - not proportional	matrix	
01 = FONT 01	10 x 14	127 characters
02 = FONT 02	15 x 21	255 characters
03 = FONT 03	22 x 31	255 characters
04 = FONT 04	48 x 67	127 characters
05 = FONT 05	22 x 39 descender	255 characters
07 = FONT 07	15 x 27 descender	255 characters

bitmap - proportional	height (mm; pixels)	
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

base line  height;  
pixels

**Note:** To reach best print results it is recommended always to chose the biggest possible font!

- **R Rotation of line**

0 =	0 degrees
1 =	90 degrees
2 =	180 degrees
3 =	270 degrees

### 7.1.2. Entry of text

In mask mode it can be switched via key **"text"** to the entry of text of line No. 1. Per text line a maximum of 70 characters is possible.

```
123456
ENTRY OF TEXT ovr 01 05
```

'ovr' = mode 'ovr' (overwrite) or 'ins' (insert)

'01' = number of line

'05' = number of character

The cursor can be moved by the keys  .

By using the keys **"Del"** single lines can be deleted. After activating key **"Enter"** or **"E"** (foil keyboard) the text of the next line can be entered.

Via key **"text"** the entry of mask can be activated again.

The mode "Entry of text" can either be left via key **"T1"**  or key **"C"**. Afterwards the basic menu is reached again.

### 7.1.3. Sample prints - pixel fonts

bitmaps not proportional	Matrix	sample print in original size extension y = 1 / extension x = 1
FONT O1	10 x 14	The quick brown fox jumps over the lazy dog
FONT O2	15 x 21	The quick brown fox jumps over the lazy dog
FONT O3	22 x 31	The quick brown fox jumps over the lazy dog
FONT O4	48 x 67	The quick brown fox jumps over the lazy dog
FONT O5	22 x 39	The quick brown fox jumps over the lazy dog
FONT O7	15 x 27	The quick brown fox jumps over the lazy dog
bitmaps proportional	height (mm; pixels)	sample print in original size extension y = 1 / extension x = 1
FONT 21	1,0 – 13	The quick brown fox jumps over the lazy dog
FONT 22	1,8 – 21	The quick brown fox jumps over the lazy dog
FONT 23	2,6 – 31	The quick brown fox jumps over the lazy dog
FONT 24	5,6 – 67	The quick brown fox jumps over the lazy dog
FONT 28	4,0 – 48	The quick brown fox jumps over the lazy dog
FONT 29	0,8 - 9	The quick brown fox jumps over the lazy dog

## 7.2. Text: Vectorfonts

### 7.2.1. Entry of mask

After activating key **"text"** the following text mask appears on the display:

Y0020	EY:02	T:01	S:02	T
X:020	EX:02	F:03	R:0	1

By activating **"Enter"** or **"E"** it can be switched to the next entry.

With the keys   the number of the mask statement can be increased or decreased (number of line)

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of the corresponding line.
- **EY Extension Y**  
Extension of font in direction of "y" (factor 1 - 99)
- **T Type style of font**  
04 - Vectorfonts proportional text  
05 - Vectorfonts autoscale  
06 - Vectorfonts proportional text inverse  
07 - Vectorfonts autoscale inverse
  - Proportional text:  
When in mode "proportional text", the height and length of text have to be entered in mm. The values refer to the capital 'M', i.e. the values of other characters are changing proportional.
  - Autoscale:  
When in mode "autoscale" the height of the characters have to be entered in mm. The height of text refers to all capital letters. When using small characters and descenders the height is changing proportional. When entering the width the complete field width has to be considered. The text will be adjusted automatically, which means the width of the characters is changing.
- **S Spaces between two characters**  
 Proportional text: min.: 1 x 0,083 mm / max.: 99 x 0,083 mm  
 Autoscale: without function since the width of characters is changing in correspondence to the number of characters being entered.
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of the corresponding line.
- **EX Extension X**  
 Proportional text: character width in mm (from 1 - 99, should be the same as Dy)  
 Autoscale: field width in mm (up to 99 mm)

- **F Choice of font**

01 = Helvetica Bold	255 characters
02 = Helvetica Bold italics	255 characters
03 = Helvetica Roman	255 characters
04 = Helvetica Roman italics	255 characters
05 = Swiss Light	255 characters
06 = Swiss Light italics	255 characters
07 = Baskerville	255 characters
08 = Baskerville italics	255 characters
09 = Brush Script	255 characters
10 = Brush Script italics	255 characters

**R Rotation of line**

0 =	0 degrees
1 =	90 degrees
2 =	180 degrees
3 =	270 degrees

<b>7.2.2. Entry of text</b>
-----------------------------

Please refer to chapter "7.1.2. Entry of text".

## 7.2.3. Sample prints - vector fonts

**Helvetica Bold****AaBbCcXxYyZz****1234567890*****Helvetica Bold******AaBbCcXxYyZz******1234567890*****Helvetica Roman** ***Helvetica Roman*****AaBbCcXxYyZz****1234567890*****AaBbCcXxYyZz******1234567890*****Swiss Light****AaBbCcXxYyZz****1234567890*****Swiss Light******AaBbCcXxYyZz******1234567890*****Baskerville****AaBbCcXxYyZz****1234567890*****Baskerville******AaBbCcXxYyZz******1234567890******Brush Script******AaBbCcXxYyZz******1234567890******Brush Script******AaBbCcXxYyZz******1234567890***

## 7.3. Barcodes

### 7.3.1. Entry of mask

After activating key "**code**" the following code mask appears on the display:

Y0020	H:02	T:30	S:1	C
X:040	P:0903	C:03	R:0	1

By activating "**Enter**" or "**E**" it can be switched to the next entry.

With the keys   the number of the mask statement can be increased or decreased (number of lines).

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of the corresponding line.
- **H Height of code in mm**  
min.: 5 mm  
max.: 99 mm
- **T Type of code**

30 -	Code 39	alphanumeric (capital letters) and - . SPACE * \$ / + %
31 -	2/5 interleaved	numerical, even number of characters
32 -	EAN 8	numerical, fix number of 8 characters
33 -	EAN 13	numerical, fix number of 13 characters
34 -	UPC A	numerical, fix number of 12 characters
35 -	UPC E	numerical, fix number of 8 characters
36 -	CODABAR	numerical and - : / . + (start / stop character)
37 -	Code 128	ASCII-font (Code A, B, C)
38 -	EAN ADD ON	EAN 13 + 2 or 5 digits
39 -	EAN 128	ASCII-font (Code A, B, C)
40 -	Code 93	alphanumeric (capital letters) and - . SPACE * \$ / + %
41 -	PZN Code	7 characters, otherwise the same as Code 39
46 -	Code 39 extended	ASCII-font
47 -	Code 128 A	ASCII-font (Code A)
48 -	Code 128 B	ASCII-font (Code B)
49 -	Pharmacode	numerical, fix number of 9 characters
50 -	PDF 417	bidimensional barcode
51 -	MAXICODE	bidimensional barcode
- **S Sign (character) underneath the code**  
0 = without text  
1 = with text
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of the corresponding line.

- **P Proportion (ratio of code)**

For all barcodes listed below certain ratios, SC-factors or module width are allowed.

Barcode	Ratio / Module width / SC-factor	Entry
Code 39 / Code 2/5 / CODABAR / Code 39 extended	ratio thick : thin at least 3:1	variable
EAN 8 / EAN 13 / UPC-A / UPC-E	~ SC- factor 0 (3x0,083) 0,249 SC- factor 2 (4x0,083) 0,332 ~ SC- factor 4 (5x0,083) 0,415 SC- factor 6 (6x0,083) 0,498 SC- factor 9 (8x0,083) 0,664	0000 0002 0004 0006 0009
Code 128 / EAN 128 / Code 93	module width 1 - 9	0001 - 0009
EAN ADD ON	SC- factor 0	0000

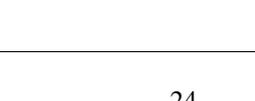
- **C Calculation of check digit (C = 0 - w/o check digit)**

Type of code	C =	
Code 39 / Code 39 ext.	1	with check digit (HIBC-code modulo 43; check digit will not be shown in the display, but coded and printed underneath the code)
	2	check digit control
Code 2/5	0	without check digit;
	1	odd number of digits: 0 will be set automatically to the first position with check digit: odd number of digits: check digit will be added behind the last position
	2	even number of digits: the last digit will be overwritten by the check digit check digit control
Code 128 / EAN 128	1	with check digit (modulo 103; check digit will not be shown in the display and underneath the code, but only coded)
EAN 8 / 13 / UPC A / E / EAN ADD ON	X	In this case the entry is irrelevant since the calculation of check digit is always done; except C=2 check digit control
CODABAR	X	no check digit
Code 93	0, 1	with check digit (modulo 47; check digit will not be shown in the display and underneath the code, but only coded)
	2	check digit control
PZN-Code	0, 1	with check digit (modulo 11); 7th digit will be overwritten as check digit
	2	check digit control

- **R Rotation of code**

0 = 0 degrees  
1 = 90 degrees  
2 = 180 degrees  
3 = 270 degrees

### 7.3.2. Barcode samples

type of code	ratio / module width / SC-factor	sample in original size, height 15 mm
Code 39	ratio 9:3	 *CODE 39*
2/5 interleaved	ratio 9:3	 1234567890
EAN 8	SC- factor 4	 98765430
EAN 13	SC- factor 4	 9 876543 210985
UPC A	SC- factor 4	 1 23456 78901 2
UPC E	SC- factor 4	 0 123456 5
CODABAR	ratio 9:3	 123456789
Code 128	module width 7 pixels	 123456789123
EAN ADD ON	SC- factor 0	 1 234567 890128 4 5
EAN 128	module width 7 pixels	 (10)23456
Code 93	module width 5 pixels	 123456789
PZN-Code	ratio 9:3	 PZN -0789192
Pharmacode	ratio 18:6	 123456

### 7.3.3. Code PDF 417

#### General information

The code PDF 417 is a bidimensional barcode. In contrast to the usual barcodes the PDF 417 consist of a bidimensional field and it is only possible to read this field when using a scanner. At the moment the PDF 417 is only available in corresponding special software.

It is possible to enter a maximum of 70 characters directly at the printer (stand-alone mode). A code PDF 417 with more than 70 characters is only to obtain via field concatenation of the individual lines. When using field concatenation of several lines it is possible to create a PDF 417 with a maximum of 200 characters. In case the PDF 417 contains control signs, they can be entered in stand-alone mode via key combination ALT-GR + decimal value.

#### Entry of mask line

After activating key "**code**" the following code mask appears on the display:

Y0020	H:02	T:30	S:1	C
X:040	P:0903	C:3	R:0	1

By activating "**Enter**" or "**E**" it is possible to pass to the next entry.

With keys   the number of the mask statement can be increased or decreased.

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of the corresponding line.
- **H Height of symbol**  
It is not possible to indicate the symbol size of the PDF 417 in mm or in similar dimensions but in discreet numbers. The following table shows the obtainable symbol sizes for different resolutions.

Size	200 DPI	300 DPI
1		
2		
3		X
4	X	
5		X
6		
7		
8	X	X
9		
10		
11		X
12	X	
13		X
14		
15		
16	X	X
17		
18		
19		X
20	X	
21		X
22		
23		
24	X	X

- **T Type of code**  
50 - PDF 417 bidimensional barcode
- **S Sign (character) underneath the code**  
0; the PDF 417 has no text underneath the code.
- **X Distance from the right side in mm**  
Is measured from the right label rim to the lower left point of the corresponding line.
- **P Proportion (ratio of height / width)**  
It is not possible to create the symbol with a defined height res. width because the necessary space depends on the contents of data.
- **C "Error Correction Level ECL"**  
Possible entry = 0-8; From support of different procedures the PDF 417 is able to rebuild destroyed information. The higher the ECL the safer is the code. However, the symbol is also growing higher.
- **R Rotation of code**
  - 0 = 0 degrees
  - 1 = 90 degrees
  - 2 = 180 degrees
  - 3 = 270 degrees

### Sample Code PDF 417

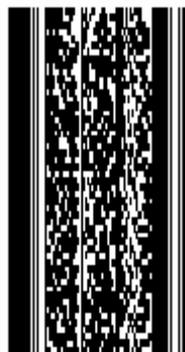
Height: 8  
Ratio: 6:2  
ECL: 2  
Characters: 58



Height: 8  
Ratio: 6:2  
ECL: 6  
Characters: 58



Height: 8  
Ratio: 6:2  
ECL: 2  
Characters: 68



Height: 8  
Ratio: 1:1  
ECL: 2  
Characters: 68



Clear text: Firma Carl Mustermann,  
Musterstraße 123,  
45678 Musterstadt

Clear text: Firma Carl Mustermann,  
Musterstraße 1234,  
56789 Musterstadt,  
Mustern

## 7.3.4. MAXICODE

### General information

The MAXICODE is a bidimensional barcode. The size of the code is standardised and therefore it is not possible to change it. The defined size is 27,94 mm x 27,94 mm. The software has been created in that way that the symbol size stays the same for printers with 200 dpi and 300 dpi.

The MAXICODE contains approx. 100 characters. It is possible to enter a maximum of 70 characters directly at the printer (stand-alone mode). A MAXICODE with more than 70 characters is only to obtain via field concatenation of the individual lines. When using field concatenation of several lines it is possible to create a MAXICODE with a maximum of 200 characters. In case the MAXICODE contains control signs, they can be entered in stand-alone mode via key combination ALT-GR + decimal value.

### Entry of mask line

After activating key "**code**" the following code mask appears on the display:

Y0020	H:02	T:30	S:1	C
X:040	P:0903	C:3	R:0	1

By activating "**Enter**" or "**E**" it is possible to pass to the next entry.

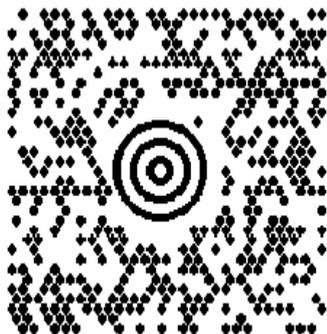
With keys   the number of the mask statement can be increased or decreased.

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of the corresponding line.
- **H Height of symbol**  
As it is not possible to modify the symbol size, the size has always to be "0".
- **T Type of code**  
51 -        MAXICODE                                bidimensional barcode
- **S Sign (character) underneath the code**  
0; the MAXICODE has no text underneath the code.
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of the corresponding line.
- **P Proportion symbol number / quantity of symbol**  
Here the ratio of the present symbol numbers (in case that several MAXICODE symbols are onto the same label) to the total number of defined MAXICODE symbols is indicated (generally for a symbol: 0101).
- **C Modus**  
It is possible to create the MAXICODE in three different modes (mode 2, 3 and 4).
- **R Rotation of code**  
0 =        0 degrees  
1 =        90 degrees  
2 =        180 degrees  
3 =        270 degrees

### Sample MAXICODE

Height: 0

Characters: 58



Clear text:

Firma Carl Mustermann,  
Musterstraße 123,  
45678 Musterstadt

## 7.4. Line graphics

In this mode vertical and horizontal lines can be created as well as squares and rectangles.

### 7.4.1. Entry of mask line

After activating key "text" the following text mask appears on the display:

Y0020	EY:02	T:01	S:02	T
X:020	EX:02	F:03	R:0	1

To enter the line mask switch with key "Enter" or "E" to T and enter the value 11. After activating key "E" the following line mask appears:

Y0020	S:010	T:11	L
X:020	R:0	F:02	1

By activating "Enter" or "E" (foil keyboard) it can be switched to the next entry.

With the keys   the number of the mask statement can be increased or decreased (number of lines).

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of a line or rectangle.
- **S Length of line**  
Length of line in mm
- **T Type style**  
11 - line (see R = rotation)
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of a line or rectangle.
- **R Rotation of line**  
0 = horizontal line (as 0 degrees)  
1 = vertical line (as 90 degrees)
- **F Thickness of line**  
Value of F x 0,083 mm

## 7.4.2. Entry of mask rectangle

After activating key **"text"** the following text mask appears on the display:

Y0020	EY:02	T:01	S:02	T
X:020	EX:02	F:03	R:0	1

To enter the mask for the rectangle switch with key **"Enter"** or **"E"** to T and enter the value 10.  
After activating key **"E"** the following mask appears:

Y0020	H:010	T:10	R
X:020	W:010	F:02	1

By activating **"Enter"** or **"E"** it can be switched to the next entry.

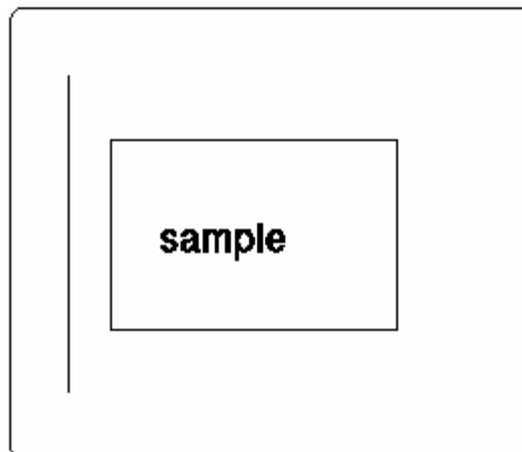
With the keys   the number of the mask statement can be increased or decreased (number of lines).

- **Y Distance from top in mm**  
Is measured from the upper label rim down to the lower left point of a line or rectangle.
- **H Height of rectangle**  
Height of the rectangle in mm.
- **T Type style**  
10 = rectangle
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of a line or rectangle.
- **W Width of the rectangle**  
Width of the rectangle in mm.
- **F Thickness of line**  
Value of F x 0,083 mm

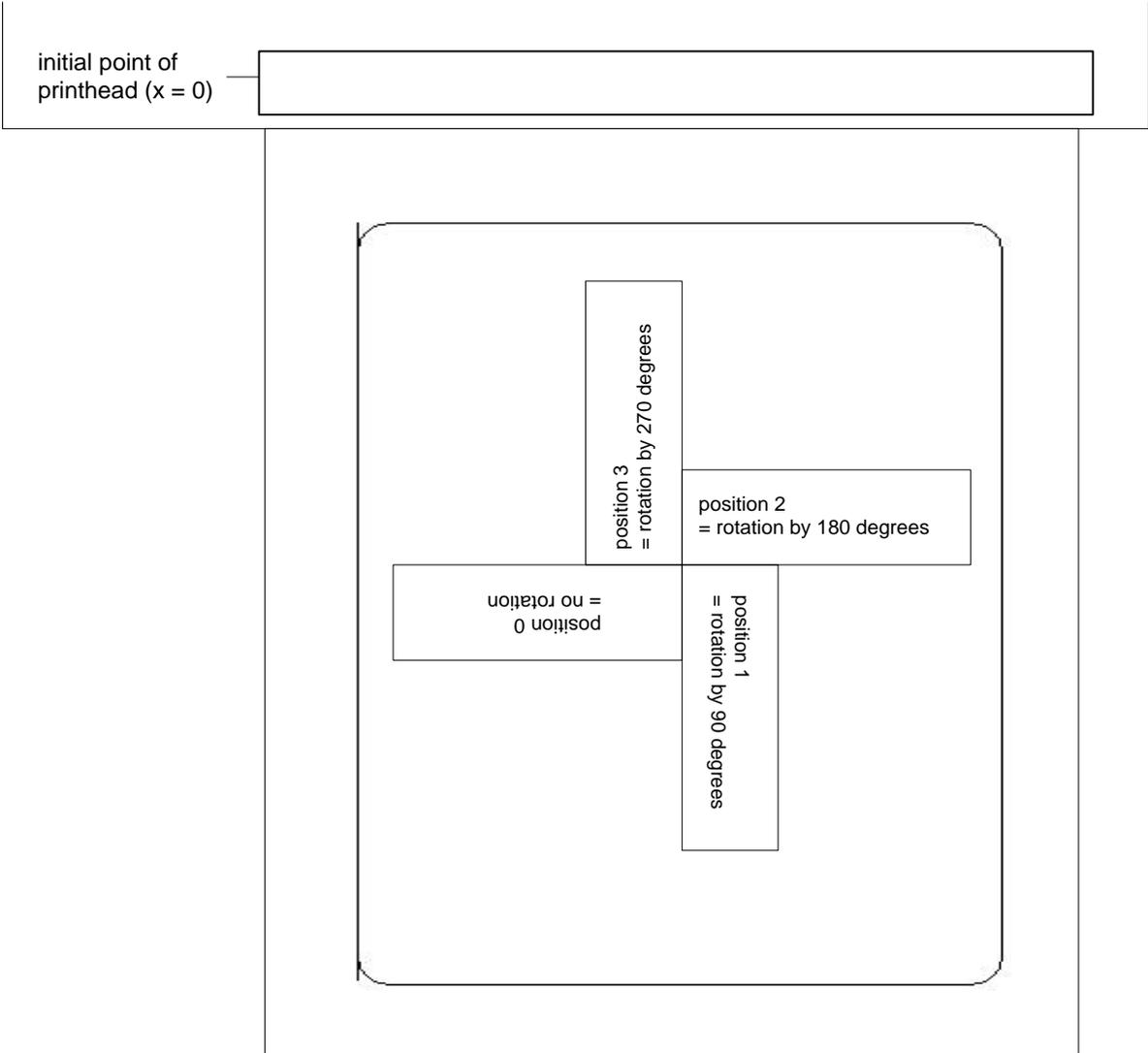
## 7.5. Sample label line graphics

### 7.5.1. Entry of mask

1. line	'068'	Enter	distance from upper label rim
	'56'	Enter	length of line
	'11	Enter	line
	'03'	Enter	thickness of line
	'089'	Enter	distance from right label rim
	'1'	Enter	vertical line
2. line	'057'	Enter	distance from upper label rim
	'034'	Enter	height
	'10'	Enter	rectangle
	'03'	Enter	thickness of line
	'081'	Enter	distance from right label rim
	'055'	Enter	width
3. line	'043'	Enter	distance from upper label rim
	'05'	Enter	extension in direction of y
	'04'	Enter	type style of font
	'02'	Enter	spaces between two characters
	'072'	Enter	distance from right label rim
	'05'	Enter	extension in direction of x
	'03'	Enter	type of font
	'0'	Enter	no rotation
sample			entry of text



## 7.6. Rotation of text, code and graphics



## 8. Memory-Card

The label printer is equipped with 2 PCMCIA Memory-Card devices:

- device A: right slot (front view)
- device B: left slot (front view).

The Memory-Card provides the possibility to store labels. Without a Memory-Card the storing of labels is not possible. The available storage space onto the Memory-Card will be displayed in all submenus which have an influence on the storage space.

The printer handles the Memory-Card as a DOS-compatible file system. After formatting the Memory-Card the directory "STANDARD" is automatically created. After switching on the printer or inserting the Memory-Card this one is the actual directory. The directories and sub-directories are indicated in capital letters and are marked with a <. The names of the files have 8 digits and 3 digits as extension.

The sub-directories can be changed with the keys  .

With key **F** the devices can be changed.

Note: Before storing a label, the number of lines has to be entered (after pressing key **"quant"**), otherwise only the first line will be stored.

**Secure write protection:** "Write-Protect"-switch on the rear of the Memory-Card has to be set "ON". Now the Memory-Card is write-protected, i.e. only the function "M-Card: load label" is possible.

The Memory-Card has to be entered so it will snap-in. The inscription has to be on the left side (front view).

To remove the Memory-Card out of slot A push the superior button ejector, to remove the card out of slot B push the inferior button.

When activating key "memo" (foil keyboard) or "F6" (alphanumerical keyboard) the following display will appear:

M-Card: load label  
 A:

M-Card: load label

Press **"start-stop"**-key  or key **"E"**.

With key **F** the devices can be changed.

With keys   the contents of the Memory-Card res. the directory can be searched through.

The directory can be selected with the keys  .

Enter the name. With key **"quant"** it is possible to delete a wrong entry.

Confirm either with key **"start-stop"** or **"E"**.



M-Card: save label

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed.

With keys   the contents of the Memory-Card res. the directory can be searched through.

The directory can be selected with the keys  .

Enter the name. With key "**quant**" it is possible to delete a wrong entry.

Confirm either with key "**start-stop**" or "**E**".



M-Card: delete file

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed.

With keys   the contents of the Memory-Card res. the directory can be searched through.

The directory can be selected with the keys  .

Enter the name. With key "**quant**" it is possible to delete a wrong entry.

Confirm either with key "**start-stop**" or "**E**".



M-Card: format

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed.

Confirm either with key "**start-stop**" or "**E**".

The message 'Format drive: A:'

If necessary change drive with key **F** and confirm with key "**start-stop**" or "**E**".

When formatting the Memory-Card the directory STANDARD will automatically be created.

➔  
M-Card: copy

Press "**start-stop**"-key  or key "**E**".

Select copy function with key **F**.  
Confirm either with key "**start-stop**" or "**E**".

Copy from A→B res. B→A:  
insert source and target MC - "**Enter**"

Copy from A→A res. B→B:  
insert source MC - "**Enter**" (content of MC is loaded into the internal buffer)  
insert target MC - "**Enter**" (content of internal buffer is loaded into MC)

➔  
M-Card: save graphic

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed.

With keys   the contents of the Memory-Card res. the directory can be searched through.

The directory can be selected with the keys  .

Enter the name, confirm either with key "**start-stop**" or "**E**".

With key "**quant**" it is possible to delete a wrong entry.

On the display appears "send graphic data" - now transfer the graphic from the PC (see interface manual).

As a final identification for transmission of graphics the following is necessary:

send command statement "print number of pieces" or parameter statement "take over" (see interface manual).

Now the graphic will be sent to the Memory-Card, then the menu item "M-Card: save graphic" appears again on the display.

➔  
M-Card: print content

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed. In the display only the existing directories are indicated.

After selecting this function all label names (8 digits with 3 digits as extension) stored on the Memory-Card will be printed each on a separate label with the format as defined in the first mask including the actual print parameters

(e.g. continuous, label length, number of lines, ...).

Before activating this function the parameters of line 1 have to be set.

Afterwards the first line has to be "initialised" again, otherwise the print-out could be nonsense.

The format res. design of the table of contents to be printed can be changed by the user, e.g. font style, additional text of the following lines, continuous print, cutting mode etc.

The format string is entered in the text line. The following format characters are available:

C: total card  
S: size of file in bytes  
D: date when the file was created

The succession of the format characters can vary.

Example: entry <CSD>.

The contents of the Memory-Card will be printed with all directories and the files included with indication of file size and date of creation, e.g.:

STANDARD	<	0	24.06.96
.	<	0	24.06.96
..	<	0	24.06.96
label1		585	27.06.96
label2		689	28.06.96
SAMPLES	<	0	25.06.96
.	<	0	25.06.96
..	<	0	25.06.96
sample1		446	26.06.96
sample2		879	27.06.96



M-Card: make directory

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed.

With keys   the contents of the Memory-Card res. the directory can be searched through.

The directory can be selected with the keys  . Enter the name. With key "**quant**" it is possible to delete a wrong entry. Confirm either with key "**start-stop**" or "**E**".



M-Card: Remove direct.

Press "**start-stop**"-key  or key "**E**".

With key **F** the devices can be changed.

With keys   the contents of the Memory-Card res. the directory can be searched through.

The directory can be selected with the keys  . Enter the name. With key "**quant**" it is possible to delete a wrong entry. Confirm either with key "**start-stop**" or "**E**".

**Note:** A directory can be deleted only if there are no more entries included.

## 8.1. Graphics in Memory-Card

### 8.1.1. To load graphics

Via interface it is possible to load graphics into the Memory-Card and save it under a numerical or alphanumerical name.

After pressing key **"memo"** (foil keyboard) or **"F6"** (alphanumerical keyboard) the following appears on the display: M-Card: "load label"

With key  you can switch to the menu item **"load graphics"**. Press key **"start-stop"** or key **"E"** and enter the desired graphics name and confirm this again by pressing key **"start-stop"** or key **"E"**. The demand "send graphics" appears and the graphic will be sent by a corresponding program. The graphic statement will be transferred to the printer. After the transmission has been completed the graphic is saved into the Memory-Card under the name entered before. In case no path is indicated the graphic will be saved in the actual directory (normally A:\STANDARD). Please note, that saving graphics onto the Memory-Card has to be handled the same as saving labels.

### 8.1.2. To load labels with graphics

When creating a label with text, code and graphics it is possible to tie up graphics into the label without storing the graphics again into the Memory-Card.

Example: In the Memory-Card the following is stored: Eti 1, Eti 2, graphic "Sample"

Memory-Card:

stored mask statements:

"Eti 1": containing 1 text line necessary memory 0,5 KB	text line 1:	<div style="border: 1px solid black; padding: 2px;">                     Y0020 EY:02 T:01 S:02 T                      X:020 EX:02 S:03 R:0 1                 </div>	
"Eti 2": containing 1 text line and 1 graphic necessary memory = 0,6 KB	text line 1:	<div style="border: 1px solid black; padding: 2px;">                     Y0020 EY:02 T:01 S:02 T                      X:020 EX:02 F:03 R:0 1                 </div>	
"Sample" graphic necessary memory 20 KB	graphic line: (2 <sup>nd</sup> line)	<div style="border: 1px solid black; padding: 2px;">                     Y0020 EX:02 T:03 S:01 T                      X:020 EX:02 <u>S:01</u> R:0 2                 </div>	<div style="border: 1px solid black; padding: 2px;">                     Sample                      Entry "Text"                 </div>
remaining memory			

It is not necessary to store the graphic anew, as the name of the graphic was indicated and saved in the graphic line. When generating the label, the printer automatically takes the graphics out of the corresponding memory of the Memory-Card.

### 8.1.3. Including of graphics via entry of mask

After pressing key **"text"**, the following appears on the display:

Y0020	EY:02	T:01	S:02	T
X:020	EX:02	F:03	R:0	1

The same parameters are used like in entry of text.  
To switch to the next entry use key **"Enter"** or **"E"**.

With the keys   (foil keyboard) the number of the mask statement (number of line) can either be increased or decreased.

- **Y distance from above in mm**  
Is measured from the upper rim of label down to the lower left point of the graphic.
- **EY Extension Y**  
multiple factor of Extension y (factor in height)
- **T Type style**  
internal graphics
- **S Select graphics name**  
- numerical graphics name: entry '00'  
- alphanumerical graphics name : entry '01'
- **X Distance from right side in mm**  
Is measured from the right label rim to the lower left point of the graphic.
- **EX Extension X**  
multiple factor of Extension x (factor in width)
- **S Statement**  
Entry of name of graphics:  
- numerical name: entry of number  
- alphanumerical name: entry '00'
- **R Rotation**  
0 = 0 degrees  
1 = 90 degrees  
2 = 180 degrees  
3 = 270 degrees

By activating key **"text"** again, it is possible to enter the name of graphic (see chapter "7.1.2. Entry of text").

## 9. To print

- ▷ In order to print a label, loaded from the MC or created new, switch to basic menu by key "test print" or "Esc".
- ▷ Activate key "quant" res. "F7". The following appears on the display:

no. of lines:	01
no. of pieces:	00001

- ▷ With the keys   you can change between the lines. If necessary change the number of lines and enter the number of pieces.
- ▷ The print can be released by activating key "start-stop"  or "E" res. "Enter".
- ▷ With key "start-stop"  the print can be interrupted.

The print order will be continued by activating key "start-stop"  again or it will be cancelled by activating key ; you change back to the basic menu.

### 9.1. To print continuously

It is possible to switch from normal adhesive labels to continuous labels but you have to notice the following instructions:

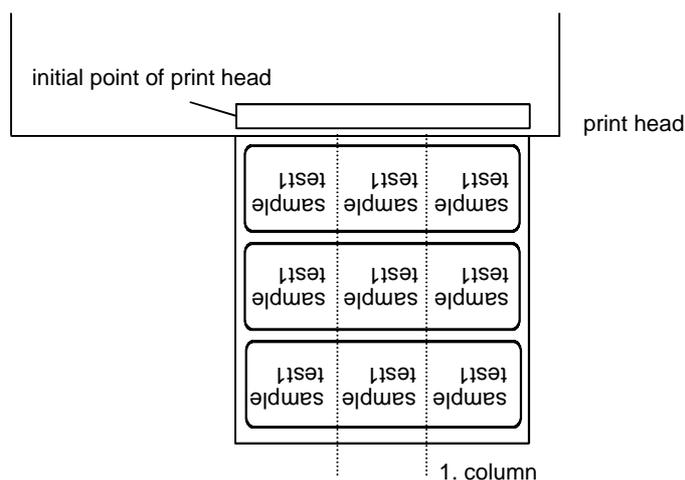
1. Change to the function menu with key **F**. Proceed with key  to the menu "Print mode".  
Confirm with "E" or "Enter", now switch to continuous mode with the keys  .
2. The label length is entered in the menu "Printer initialisation".
3. In case you confirm with key "start-stop"  under point 1, the continuous mode is valid even after turning off and on the printer, i.e. after turning on the printer again the label won't be measured.

Switching back to normal adhesive labels (as described under point 1) the label will be measured after activating key "E" or "Enter".

## 9.2. To print several columns

With this thermal-transfer printer it is possible to print several columns, i.e. the information of one column can be printed several times (depending on its width) on a label. Thereby the complete printhead width can be used fully and the generating time can be decreased enormously.

For example on a label with a width of 100 mm, 4 columns a 25 mm or 2 columns a 50 mm can be printed. However only the mask and text entry of the first column of the label has to be defined. Yet you have to notice, that the first column is always the one with the highest x co-ordinates, i.e. it has the highest distance to the initial point of the printhead.



The following instructions explain how to switch to mode "Print of several columns":

- ▷ Change to the function menu with key **F**. Proceed with key to the menu "Printer initialisation". Confirm with "**E**" or "**Enter**" and proceed again with key until the menu item "Print of several columns" is shown.
- ▷ Here the number of columns can be changed by the keys , e.g.: 3 columns with a label width of 65 mm.
- ▷ With the keys you can step forward to the width. With the keys the column width can be changed. As width, the width of one column will be defined, e.g. 20,0 mm.
- ▷ Entry of mask and text as usual, but only for the 1. column.
 

Example:    line 1            y = 05 mm      x = 62 mm  
                  line 2            y = 10 mm      x = 62 mm
- ▷ Release the print by activating key "**quant**" and enter the number of lines and pieces. The number of pieces corresponds to the number of labels to be printed.  
 e.g. columns: 3, pieces: 4



## 10. Dispensing modes (Option)

With the option "dispenser" it is possible to operate in six different dispensing modes, which basically can be limited to two different types: via external in-/output or via photocell.

In menu "printing mode" of the function menu with its menu item "dispensing modes", the following modes can be selected:

- OFF
- I/O static
- I/O dynamic
- photocell
- I/O continuous static
- I/O continuous dynamic
- photocell continuous

With the keys   it is possible to change between the dispensing modes. All dispensing modes operate with an automatically forth / back movement. The OFFSET 1 which is necessary has to be defined once in menu "global printer initialisation" (approx. 18 mm).

**Note:** For dispensing labels a minimum label height of 15 mm is recommended.

### 10.1. Dispenser OFF

It will be printed without dispensing, as the dispenser is not activated (basic condition when no option "dispenser" is available).

### 10.2. I/O static

In this dispensing mode the printer will be directed via external I/O.

A dispensing impulse from outside will be transferred via the corresponding input port at the printer, whereby the print order will be started and the first label printed. The printed label has to be taken off, before the next impulse occurs. This proceeds until the number of pieces is 0.

In case the impulse lasts for a longer time, several labels will be pre-printed and then dispensed separately later.

For this mode the entered dispensing offset (OFFSET 1) is not taken into consideration.

### 10.3. I/O dynamic

In this dispensing mode the evaluation of the external impulse is dynamic. A label will be printed only in case of a LOW-HIGH amplitude of the input impulse.

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## 10.4. Photocell

In this dispensing mode the printer will be directed via photocell. The print order will be started when **no** label is under the photocell. Always only one label will be printed, which has to be taken off the dispenser, before the next can be printed. This proceeds until the number of pieces is 0. So only a label will be printed in case the photocell is free of labels. This is valid for test prints or paper feed, too. Errors are shown in the display and have to be eliminated first, before the next label can be printed.

## 10.5. I/O continuous static

This dispensing mode operates as described in chapter "10.2. I/O static". The supplement "continuous" just indicates, that the label information will be generated only once and won't be deleted, but stays in the printer buffer as long as new information will be entered or sent via interface. The label can be printed as often you like, as long as external impulses are being transferred to the printer. For this mode the entered dispensing offset (OFFSET 1) is not taken into consideration.

## 10.6. I/O continuous dynamic

This dispensing mode operates as described in chapter "10.3. I/O dynamic". The supplement "continuous" just indicates, that the label information will be generated only once and won't be deleted, but stays in the printer buffer as long as new information will be entered or sent via interface. The label can be printed as often you like, as long as external impulses are being transferred to the printer.

## 10.7. Photocell continuous

This dispensing mode operates as described in chapter "10.4. Photocell". The supplement "continuous" just indicates, that the label information will be generated only once and won't be deleted, but stays in the printer buffer as long as new information will be entered or sent via interface. The label can be printed as often you like, when the printed label has been taken off the dispenser.

In the dispensing modes "... continuous" the number of printed labels will be counted and shown in the display.

## 11. Cutting modes (Option)

With the option "cutter" it can be printed in five different cutting modes. In menu "printing mode" of the function menu with its menu item "cutting modes", the following modes can be selected:

- OFF
- cutter without back feed
- cutter with back feed
- interval - with end cut
- interval - without end cut
- end cut (no. of labels = 0)

With the keys   it is possible to change between the cutting modes. In addition to the separate cutting modes, the offset 1 has to be defined once in menu "global printer initialisation".

### 11.1. Cutter OFF

It will be printed without cutting, as the cutter is switched off (basic condition when no option "cutter" is available).

### 11.2. Cutter without back feed

In this mode the value of OFFSET 1 defines the distance of back and forth movement to ensure a correct cut within the gap of two labels. In general the value of OFFSET 1 is approx. 18 mm; which corresponds to the distance between print line and edge of cutter-blade. Hereby it has to be considered, that this value of OFFSET 1 has to be deducted of the label area, i.e. 18 mm cannot be printed on.

### 11.3. Cutter with back feed

In this mode the value of OFFSET 1 defines the distance of back and forth movement to ensure a correct cut within the gap of two labels. The procedure of adhesive labels and continuous paper is the same. Again the value of OFFSET 1 is 18 mm. In this mode the complete area of the label can be used.

### **11.4. Interval - with end cut**

When using this mode, it is possible to cut after a certain number of labels, as well as to cut after the final label of the corresponding print order. In this mode the principle of feeding back and forth is selected. The value of interval has to be entered with the print order.

### **11.5. Interval - without end cut**

This mode is exactly the same as the one with end cut, except the fact that no end cut results. An end cut only occurs in case an interval cut accidentally results at the end of a print order. The value of the interval has to be entered with the print order.

### **11.6. End cut (no. of labels = 0)**

In this mode only at the end of a print order the cutter will be activated (also with back and forth movement).

# 12. Function menu

**Print parameters**

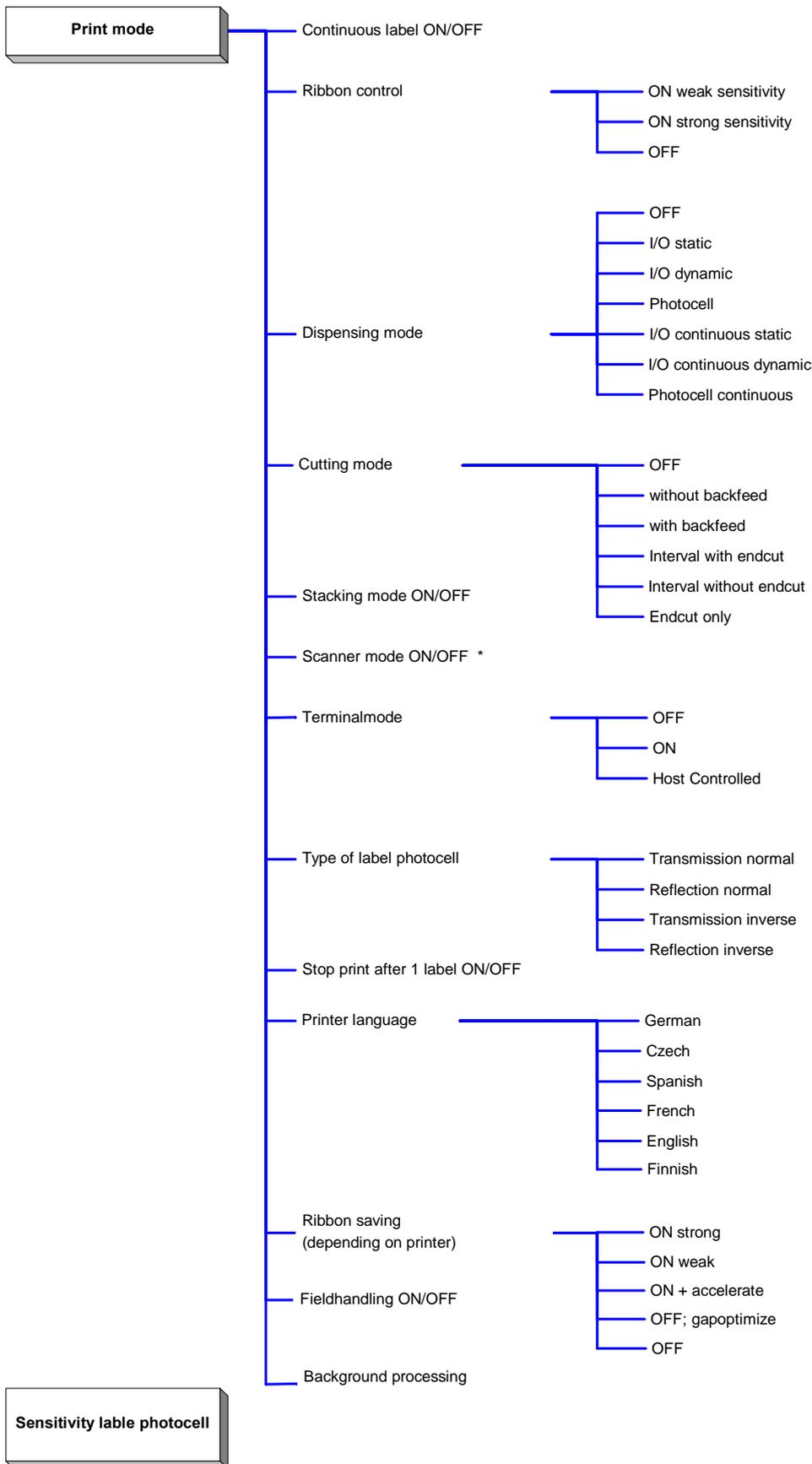
- Speed
- Contrast

**Measure label**

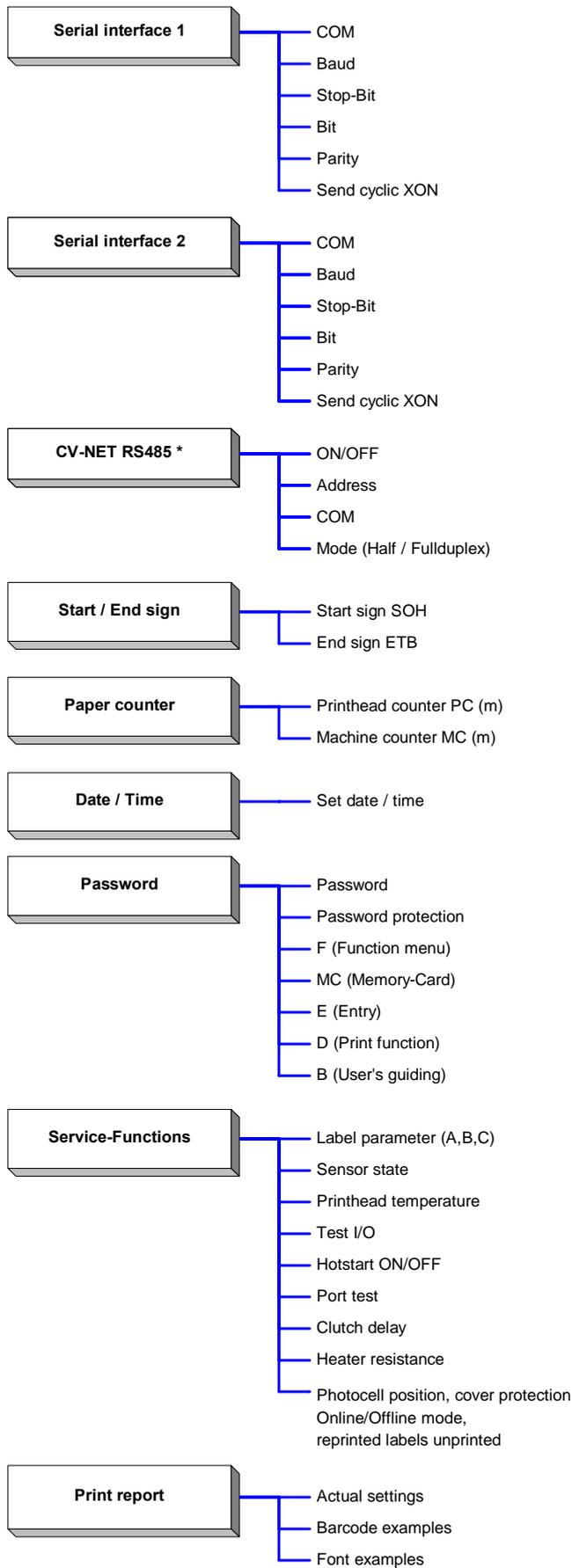
**Printer initialisation**

- Label length / gap width
  - Germany
  - Sweden
  - Spain
  - Greece
  - France
  - England
  - Republic of Czech
- Keyboard click ON/OFF
- Keyboard layout
  - ANSI-Charset
  - CP 437 greek
  - GEM danish
  - GEM swedish
  - GEM french
  - GEM english
  - GEM german
  - Codepage 850
  - Codepage 437
  - CP 852 (Font version 3.2x)
  - CP 857 (Font version 3.3x)
- Codepage selection
- Photocell switching level
- Offset 1 (Dispenser / Cutter)
- Offset 2 (Y-displacement)
- Offset 3 (X-displacement)
- Offset 4 (tear-off)
- Print of several columns
- Label print and apply system PSP \*
- Measure label ON/OFF
- External print parameters ON/OFF

\* only possible with option PSP



\* Option



\*Option

## 12.1. Entry of function menu

In the following all menus of the function menu are catalogued with their menu items. The tabulated view shows exactly which keys have to be pressed in order to reach a certain menu item to alter values / parameters.

Alternations in the function menu can be made either by the numeric foil keyboard at the printer or by the corresponding keys of an external keyboard. The adjusted parameters will be stored in an EPROM and after switching on the printer again these parameters will be available.

### View of function menu:

<b>F</b> start function menu	to switch to the next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>1. Print parameters</b></p> <p style="text-align: center;">● ↓</p> <p>Speed</p> <p style="text-align: center;">→ ↓</p> <p>Contrast</p> <p style="text-align: center;">→ ↓</p> <p>back to: "Speed"</p>	<p style="text-align: center;">→</p> <p>to 2. Measure label</p>	<div style="display: flex; justify-content: space-around; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px;">▴</div> <div style="border: 1px solid black; padding: 2px;">▾</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">▴</div> <div style="border: 1px solid black; padding: 2px;">▾</div> </div>	<p style="text-align: center;">←</p> <p style="text-align: center;">●</p> <p style="text-align: center;">●</p>	<p style="text-align: center;">   </p> <p style="text-align: center;">   </p> <p style="text-align: center;">   </p>
<p><b>2. Measure label</b></p> <p style="text-align: center;">● release</p> <p style="text-align: center;">↓</p> <p>Values are shown and stored; labels will be measured</p>	<p style="text-align: center;">→</p> <p>to 3. Printer initialisation</p>		<p style="text-align: center;">←</p> <p style="text-align: center;">●</p>	<p style="text-align: center;">   </p> <p style="text-align: center;">   </p>

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>3. Printer initialisation</b></p> <p>                  Label length / gap width                  switch to next digit with   </p> <p>                    Keyboard click ON/OFF</p> <p>                    Keyboard layout:                  Germany / Sweden / Spain /                  Greece / France / England /                  Republic of Czech</p> <p>                    Codepage selection                  (ANSI-Charset / CP 437 greek /                  GEM danish / GEM swedish /                  GEM french / GEM english /                  GEM german / Codepage 850 /                  Codepage 437 /                  CP 852 (Font version 3.2x)                  CP 857 (Font version 3.3x)</p> <p>                    Photocell switching level V (Voltage)                  only to change in case dispensing mode                  with photocell is selected)</p> <p>                    Offset 1 (Dispenser / Cutter)</p> <p></p>	<p>                  to 4.                  Print mode</p>	<p> </p> <p> </p> <p> </p> <p> </p> <p> </p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
				
Offset 2 (Y-displacement) 		 		
 Offset 3 (X-displacement) 		 		
 Offset 4 (Tear-off) 		 		
 Print of several columns (NC: number of columns CW: column width) switch to the next digit with   		 		
 Label print and apply system PSP switch to the next digit with   		 		
 Measure label (when switching on the printer) ON/OFF 		 		
 ext. print parameter (Yes / No) 		 		
 back to: "Label length / gap width"				

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>4. Print mode</b></p> <p> Continuous label (ON/OFF)</p> <p> Ribbon control (ON – weak / ON – strong / OFF (weak – control rarely strong – prompt reaction))</p> <p> Dispensing mode (OFF / I/O static / I/O dynamic / Photocell / I/O continuous static / I/O continuous dynamic / Photocell continuous) when in dispensing mode automatically with back feed</p> <p> Cutting mode (OFF / without res. with back feed / Interval with res. without end cut / end cut only)</p> <p> Stacker mode</p> <p> Scanner mode * 0 = OFF 1 = Mode 1 2 = Mode 2</p> <p> Terminalmode (OFF / ON / Host Controlled)</p> <p> Type of label photocell (Transmission normal res. inverse, reflection normal res. inverse)</p> <p> Stop print after 1 label (ON/OFF)</p>	<p> to 5. Sensibility</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

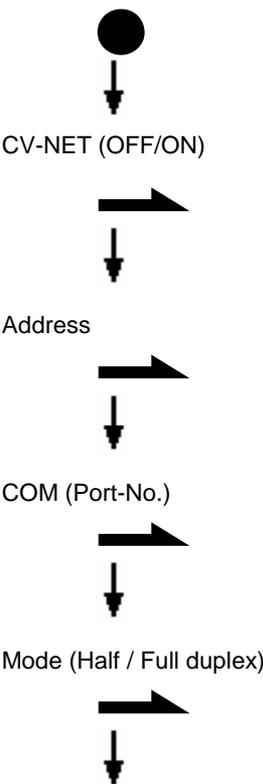
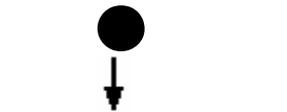
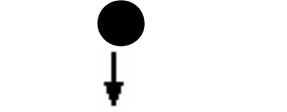
\* Option

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
<p>Printer language german, czech, spanish, french (version password protected), english, finnish</p> <p style="text-align: center;">➡ ↓</p> <p>Ribbon saving (depending on printer) (ON – strong / ON – weak / ON + accelerate / OFF, gapoptimize / OFF)</p> <p style="text-align: center;">➡ ↓</p> <p>Fieldhandling ON/OFF</p> <p style="text-align: center;">➡ ↓</p> <p>Background processing (ON/OFF)</p> <p style="text-align: center;">➡ ↓</p> <p>Back to: "Continuous label"</p>		<p style="text-align: center;">☐ ☐</p> <p style="text-align: center;">☐ ☐</p> <p style="text-align: center;">☐ ☐</p> <p style="text-align: center;">☐ ☐</p>	<p style="text-align: center;">●</p> <p style="text-align: center;">●</p> <p style="text-align: center;">●</p> <p style="text-align: center;">●</p>	<p style="text-align: center;">   </p> <p style="text-align: center;">   </p> <p style="text-align: center;">   </p> <p style="text-align: center;">   </p>
<p><b>5. Sensitivity label photocell</b></p> <p style="text-align: center;">● ↓</p> <p>Sensitivity in %</p> <p style="text-align: center;">● release ↓</p> <p>Values will be stored. It is recommended to measure the label anew.</p>	<p style="text-align: center;">➡</p> <p>to 6. serial Interface 1</p>	<p style="text-align: center;">☐ ☐</p>	<p style="text-align: center;">↩</p> <p style="text-align: center;">●</p>	<p style="text-align: center;">   </p> <p style="text-align: center;">   </p> <p style="text-align: center;">   </p>

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>6. Serial interface 1</b></p> <p></p> <p>COM ( 1 / 2 / 3 )</p> <p>1 = OFF 2 = ON 3 = ON – without error message in case of transferring error</p> <p></p> <p></p> <p>Baudrate (2400, 4800, 9600, 19200 Baud)</p> <p></p> <p></p> <p>Stop (1 or 2 Bit)</p> <p></p> <p></p> <p>Bit (7 or 8 Bit)</p> <p></p> <p></p> <p>Parity (no / even / odd / zero)</p> <p></p> <p></p> <p>Send cyclic XON (1 = yes / 0 = no)</p> <p></p> <p>Back to: "COM"</p>	<p></p> <p>to 7. serial interface 2</p>	<p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p>

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>7. Serial interface 2</b></p> <p></p> <p>COM ( 1 / 2 / 3 )</p> <p>1 = OFF 2 = ON 3 = ON – without error message in case of transferring error</p> <p></p> <p></p> <p>Baudrate (2400, 4800, 9600, 19200 Baud)</p> <p></p> <p></p> <p>Stop (1 or 2 Bit)</p> <p></p> <p></p> <p>Bit (7 or 8 Bit)</p> <p></p> <p></p> <p>Parity (no / even / odd / zero)</p> <p></p> <p></p> <p>Send cyclic XON (1 = yes / 0 = no)</p> <p></p> <p>Back to: "COM"</p>	<p></p> <p>to 8. CV-NET RS 485 *</p>	<p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p>

\* Option

<b>F</b> start function menu	to switch to next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>8. CV-NET RS 485 *</b></p>  <p>CV-NET (OFF/ON)</p> <p>Address</p> <p>COM (Port-No.)</p> <p>Mode (Half / Full duplex)</p> <p>back to: "CV-NET"</p>	 to 9. Start/end sign	      	        	        
<p><b>9. Start/End sign</b></p>  <p>Start sign 01/End sign 17 /                  Start sign 5E/End sign 5F</p>	 to 10. Paper counter		  	  
<p><b>10. Paper counter</b></p>  <p>PC: printhead counter in m                  MC: machine counter in m</p>	 to 11. Date/Time		  	

\* Option



<b>F</b> start function menu	to switch to the next menu	to change values	to store values	back to basic menu (w/o storing)
<p><b>13. Service functions</b></p> <p></p> <p>↓</p> <p>Label parameter:                      A: absolute minimum                      B: differenz maximum-minimum                      C: switching label</p> <p></p> <p>↓</p> <p>Sensor state                      (Ribbon photocell / label photocell / photocell printhead closed / photocell printhead open / dispensing photocell)</p> <p></p> <p>↓ Printhead temperature</p> <p></p> <p>↓ Test control I/O</p> <p></p> <p>↓ Hotstart (ON/OFF)</p> <p></p> <p>↓ Port test</p> <p></p> <p>↓ Clutch delay                      switch to the next item with</p> <p> </p> <p></p> <p>↓ Heater resistance (Ohm)</p> <p></p> <p>↓ LS – Photocell position                      0 = Standard value                      1 = old photocell for 104/107                      switch to the next item with</p> <p> </p> <p>DK – Cover control                      0 = deactivated (Standard)                      1 = ativated                      switch to the next item with</p> <p> </p>	<p></p> <p>to 14. Print report</p>	<p> </p> <p> </p>	<p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

<b>F</b> start function menu	to switch to the next menu	to change values	to store values	back to basic menu (w/o storing)
<p>ONOFF – Online / Offline Mode                      0 = deactivated (Standard)                      1 = activated                      switch to the next item with</p> <p style="text-align: center;">   </p> <p>NDK – Reprinted labels unprinted                      0 = Reprinted labels are printed (Standard)                      1 = Reprinted labels are unprinted</p> <p style="text-align: center;">    </p> <p>back to: "Label parameter"</p>				<p style="text-align: center;"></p> <p style="text-align: center;"></p>
<p><b>14. Print report</b></p> <p style="text-align: center;"></p> <p>Actual settings</p> <p style="text-align: center;">    </p> <p>Barcode examples</p> <p style="text-align: center;">    </p> <p>Font examples</p> <p style="text-align: center;">    </p> <p>back to: "Actual settings"</p>	<p style="text-align: center;">                       to 1.                      Print parameters                 </p>		<p style="text-align: center;">    </p>	<p style="text-align: center;"></p>

## 13. Ribbon saving

To reduce consumption of transfer ribbon it is possible to select three different types of ribbon saving in the sub-menu "ribbon saving" of the menu item "print mode" of the function menu

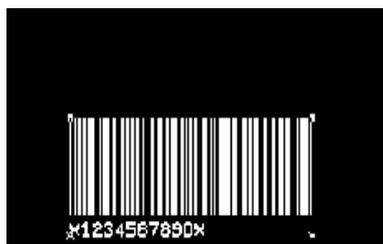
- OFF
- OFF, gap optimizing
- ON strong
- ON weak
- ON + acceleration

With the keys   you can change the different modes of ribbon saving.

### Sample label



Transfer ribbon without ribbon saving



Transfer ribbon with ribbon saving



You can clearly notice from the above-mentioned example that the consumption of transfer ribbon is much lower when using the mode ribbon saving.

---

### **13.1. Ribbon saving OFF**

When using this mode it is printed without ribbon saving.

### **13.2. Ribbon saving OFF, gapoptimize**

This mode is set to protect the printhead. It is also printed without ribbon saving. The printhead is moved up at the end of the label and again moved down at the beginning of a new label, i.e. the printhead is lifted over the gap (distance between the labels).

### **13.3. Ribbon saving ON strong**

The consumption is the lowest when using this mode. The minimum space between the areas to be printed is approx. 10 mm.

This could lead to a high up and down moving frequency because the printer tries to optimize small gaps.

### **13.4. Ribbon saving ON weak**

The consumption of transfer ribbon is twice as for mode "ribbon saving ON strong". The minimum space between the areas to be printed is approx. 15 mm.

### **13.5. Ribbon saving ON + accelerate**

When the printhead is up the label feed is accelerated up to 250 mm/s. At the beginning of the area to be printed it is braked again back to the print speed.

The mode of ribbon saving corresponds to "13.3. Ribbon saving ON strong".

In case the distance between the parts to be printed is too small no ribbon saving effects. The minimum distance varies to the print speed. In case the print speed increases there is slow res. no ribbon saving.

## 14. Background processing

With the function "Background processing" the printer tries to create data for the next label parallel during the printing procedure.

Caused by this a continuous print with counter and the variable date is possible. The processing depends on the quantity of data, the print speed and the memory extension.

- ▷ Enter the function menu with key **F** and step further with key  until you reach the menu "Print mode".
- ▷ Confirm the selection with key **"start-stop"** or with key **"E"**.
- ▷ Step further with key  to the menu item "Background processing" and activate res. deactivate the function with the keys  .
- ▷ Confirm the selection with key **"start-stop"** or with key **"E"**.

In case the printer needs more time for processing than for printing out the label the print procedure is discontinued for a corresponding time and then automatically again started.

To avoid the above described situation it is recommended to reduce the print speed. Now it is possible to print effectively more labels because the printer does not need to stop before each new print-out.

## 15. Password

By a password several functions can be blocked, so the user can't work with them. There are several applications in which the use of password protection makes sense. In the following different applications are shortly described.

### 1. Example:

The supervisor programs a Memory-Card directly with the printer. He stores 10 different labels. As well he adjusts the printer parameters, like contrast, speed, etc. to the corresponding values. The user is only supposed to read the labels out of the Memory-Card and to print them.

Therefore the supervisor blocks the function menu and the entry function by a password.

### 2. Example:

The printer is connected to a PC. The user is only supposed to take the labels dispensed by the printer and stick them on. To prevent, that the labels or the printer set-up will not be changed, the supervisor blocks all printer functions (like function menu, entry menu, Memory-Card, ...) by a password.

### 3. Example:

The user has to change several texts before printing. It is not allowed to change any masks (fonts, position, etc.). Therefore the supervisor blocks the entry of mask and the function menu.

By this means the user indeed can print labels, but the printer set-up and the masks of the labels can't be changed.

### 4. Example:

The supervisor saves several labels onto a Memory-Card. These labels contain variables, which should be changed by the user directly at the printer, otherwise the labels should not be changed at all.

Therefore the supervisor activates the user's guiding via password; thereby the entry and partly the print function will be blocked automatically and the Memory-Card functions are limited to reading only functions. Additionally he blocks the function menu. Now the user only can load labels from the Memory-Card. Then he will be led by the user's guiding, where he can enter the variable by keyboard, to the entry of the number of prints to start the printing.

## 15.1. Function groups

To receive a most flexible password protection, the printer functions will be divided into several function groups:

### 1. Function menu:

In the function menu the printer parameters can be changed. (contrast, speed, mode, ...). The password protection prevents modifications at the printer settings.

### 2. Memory-Card:

With the functions of the Memory-Card labels can be stored, loaded, ....

Here the password protection has to separate, if none or only reading functions are allowed.

**3. Entry function:**

With the keys **"text"** and **"code"** actual changes of mask or text entry can be done. The password protection either blocks the whole function or allows changes in the text information.

**4. Print function:**

With key **"quant"** a print can be produced. In case the printer is connected to a PC, it can be useful, that the user is not able to produce a print manually. So the password protection prevents that prints can be produced manually.

**5. User's guiding:**

The user's guiding enables to enter res. to change certain texts and to enter the number of labels only. The user can stay only in this special menu guiding. So the password protection blocks the entry and partly the print function, with the Memory-Card just reading only functions are allowed. The access to the function menu is open, however it can be blocked in addition.

Because of these different function groups the password protection is very flexible. The printer can be adjusted best to its actual order, as only certain functions are blocked.

## 15.2. To define a password

In case no password is defined res. the password protection is not activated, all functions can be used. In the function menu you will find the menu item "Password", where the password can be entered and the password protection activated.

- ▷ Enter the function menu with key **F** and step further with key  until you reach the menu "Password".
- ▷ Activate the key **"start-stop"** (foil keyboard) res. **"Enter"** (alphanumerical keyboard) and the following display appears:

Password:	0000	N
F:0	MC:0	E:0 D:0 B:0

The abbreviations have the following meaning:

F	function menu
MC	Memory-Card functions
E	entry menu
D	print functions
B	user's guiding

- ▷ In case the password protection is active, but the function menu is not protected, the password (4-digit number between 0000 and 9999) has to be entered first, so the above shown display appears. Now changes can be done. In the first line the user can define the password (4-digit number).
- ▷ Step further with key ; now with the keys   you can activate / deactivate the password protection (Yes/No).

- ▷ In the second line you step further again with key . With the keys   the several function groups can be blocked / released.

(You can step from one function group to the other and back again with   .)

F:	function menu	0... open 1... blocked
MC:	Memory-Card	0... open 1... only reading functions 2... all functions blocked
E:	Entry	0... open 1... only masks blocked 2... no entry possible
D:	print function	0... open 1... entry of number of pieces possible 2... no manual print release
B:	user's guiding	0...OFF 1...ON

- ▷ To perform a blocked function:  
In case the user wants to perform a blocked function, he has to enter the valid password first.  
Display:

Password 0000
------------------

The entered password has to be confirmed with "E". In case the correct password has been entered the desired function can be performed. If the entered password was invalid no error message appears but the main menu will be displayed.

---

## 16. Hotstart

The basis for "Hotstart" is the existence of the battery onto the printer electronic (automatically presented with installed Real Time Clock).

For activating it is necessary to select the "Hotstart" in the service functions.

The "Hotstart" contains two functions:

- In case of a possible power failure the actual label will be further processed without a loss of data.
- It is possible to interrupt and to continue an actual print order at the same position after again switching on the printer.

**Note:** Data in the receiving buffer (interface) are not stored.  
In case of an installed memory extension graphic data in the actual print order are also lost.

## 17. Online / Offline mode

The operating mode Online / Offline mode can be activated res. deactivated in the service menu. For an activated Online / Offline mode the corresponding status is indicated in the display.

POS O150-12-K Online
Version 5.17d

POS O150-12-K Offline
Version 5.17d

It is possible to change to the mode (Online / Offline) in the main menu with start-stop key  or with Shift + F19 (IBM-keyboard).

### Online

In Online mode it is not possible for the user to make any commands. In this case for example it is not possible for example to run a test print or feeding label because the keyboard is locked.

In case an error occurs it is possible that the user reprints the last printed label with the key  .

### Offline

In Offline mode the user can operate the printer as usual. The printer do not process receiving data, only if the printer is changed to Online mode new print orders were received.

## 17.1. Blank label for reprintings

In case of an error (in the display appears "stopped") and labels are reprinted these labels were up to now printed. The last printed label is reprinted anew in spite of existing variables and consecutive numbering.

Now it is possible to select if you would like to have the reprinted label as a blank label. This is especially advisable when you are printing valued labels and the user has not the possibility to print a lot of copies.

The setting can also be made in the service functions.

## 18. Variables

### 18.1. General

The entry of variables corresponds to the entry of standard text or barcode via the entry of mask, i.e. various fonts can be chosen as well as size or position, rotation etc. In the following example the text mask will be used.

After activating key **"text"** the following text mask appears on the display:

Y0020	EY:02	T:01	S:00	T
X:020	EX:02	F:03	R:0	1

Press key **F** and the following display appears:

Type of variable none
--------------------------

With the keys   the desired type of variable can be selected:

- none (standard text line)
- counter
- date/time
- temporary date
- user's guiding
- scanner \*
- euro

Confirm the selected type of variable by pressing **"start-stop"**-key  or key **"E"**.

The variable text line is indicated in the mask with "v":

Y0020	EY:02	T:01	S:00	Tv
X:020	EX:02	F:03	R:0	1

The mode "Entry of text" can either be left via key "T1"  or key **"C"**. Afterwards the basic menu is reached again.

\* Option

## 18.2. Counter

If consecutive numbering of labels is desired, this can be done with the entry of the counter. The counter is defined as follows.

- ▷ Activate key "text" and then press key **F**.
- ▷ Select the type of variable "counter" with the keys  .
- ▷ Confirm your selection by pressing "start-stop"-key  or key "E".
- ▷ The following display appears:

Counter:	SW:+001
S:01	UI:001 M:0 R:10

- ▷ With the keys   you can step from one entry to the next.

**SW: step width**

defines the interval of counting  
(min. 001, max. 999)  
and the direction of counting (+ or -)  
+ adding  
– subtracting

**S: start position**

entry of the digit where the numbering starts counting  
(min. 01, max. 70)

**UI: update interval**

number of labels with identical number  
(min. 001, max. 999)

**M: function mode of the counter**

- 0 standard  
When a new print order is started the counter will automatically continue.
- 1 return to start value  
When a new print order is started the counter will continue from the beginning, i.e. from the start value that was entered for the previous print order.
- 2 enter the start value at the beginning of printing (default = existing start value).  
After the quantity entered has been confirmed, the start value can be entered in the display.  
When a new print order is started the start value previously entered will be indicated.
- 3 enter the start value at the beginning of printing (default = last final number).  
After the quantity entered has been confirmed, the start value can be entered in the display.  
When a new print order is started, the last final value will be indicated as start value.

**R: counting mode (radix)**

The desired counting mode can be entered from 00 to 36.

Examples:

- 00 letters only  
(AA, AB, AC, ..., AZ, BA, BB, BC, ..., BZ, CA, CB, CC, ..., CZ, DA, ...)
- 01 alphanumerical  
(A0, A1, A2, ..., A9, B0, B1, B2, ..., B9, C0, C1, C2, ..., C9, D0, ...)
- 02 binary  
(000, 001, 010, 011, 100, 101, ...)
- 10 decimal  
(000, 001, 002, 003, ..., 999, 000, 001, ...)
- 16 hexadecimal  
(000, 001, ..., 009, 00A, 00B, ..., 00F, 010, ...)

Confirm with "**start-stop**"-key  or key "**E**". The variable text line is indicated in the mask with "v".

Press key "**text**" to change into the text line where the start value of the counter can be entered.

The mode "Entry of text" can either be left via key "T1"  or key "**C**". Afterwards the basic menu is reached again.

## 18.3. Date/time

The type of variable date/time has to be defined as follows.

- ▷ Activate key **"text"** and then press key **F**.
- ▷ Select the type of variable "date/time" with the keys  .
- ▷ Confirm your selection by pressing **"start-stop"**-key  or key **"E"**.
- ▷ The following display appears:

date/time:		
MO:000	DO:000	UI:A

With the keys   you can step from one entry to the next.

**MO: month offset**

Here the selected month offset can be entered (1 - 999).  
In case no offset is required step to the next entry.

**DO: day offset**

Here the selected day offset can be entered (1 – 999).  
In case no offset is required step to the next entry.

**UI: update interval**

It is differentiated between the two following function modes:

A: actual time for the complete print order  
The actual time at the beginning of the print order will be printed on each label.

B: actual time for each label  
On each label the actual print time of the label will be printed.

Select the desired mode with the keys  .

Confirm with **"start-stop"**-key  or key **"E"**. The variable text line is indicated in the mask with "v".



## 18.4. User's guiding

### 18.4.1. General

The user has the possibility to define an own special user's guiding. Therefore one or several variables will be defined when creating the label. By the user's guiding, switched on in menu "Password" (see chapter "15. Password"), the user can enter res. change these variables while printing.

Example:

A label should be printed several times, but after every printed label the information of one text or barcode line should be changed, e.g. a price. This line will be defined as a variable and the user's guiding has to be switched on in function menu under "Password".

Is a label being printed, the user is able to enter the text information of the variable, e.g. the price, directly at the printer via foil keyboard (numerical) or external alphanumerical keyboard. Next the number of labels can be defined and the print can be started.

So this special user's guiding enables to print labels with variables in stand alone mode very quick, as these variables are shown in the display and entered directly at the printer.

There is no need that the user searches the line with the variable first, because he will be led from one variable to the next; he enters or changes the variable, afterwards he can start the print immediately.

### 18.4.2. To define a variable

The variable user's guiding is defined as follows.

- ▷ Activate key **"text"** and then press key **F**.
- ▷ Select the type of variable "user's guiding" with the keys  .
- ▷ Confirm your selection by pressing **"start-stop"** key  or key **"E"**.
- ▷ The following display appears:
 

User's guiding:				
TE:0	SC:0	AE:0	AP:0	FZ:0
- ▷ Enter the values with the keys  .
- ▷ With the keys   you can step from one entry to the next.

- TE: Type of entry**  
allowable characters:  
0 numerical characters + special characters: . , ; : - /  
1 alphanumerical characters
- SC: Special characters**  
function to jump over special characters:  
0 special characters are not jumped over during entry  
1 special characters are jumped over during entry
- AE: Alignment entry**  
0 entry aligned to the right side
- AP: Alignment print**  
0 print aligned to the right side
- FC: Filling characters**  
(function not yet available with actual version)

- ▷ Confirm with key "**start-stop**"  or key "**E**".
- ▷ The following display appears to enter the help text for the variable:

prompt text user guiding

Here the help text for the variable can be entered, e.g. 'Enter price'. For the help text there are 24 digits available. This help text will then appear in the first line of the display when being printed.

- ▷ Press key "**E**" to define the variable via the format string.  
Activate key "**text**" to enter the format string in text entry mode.  
Entry e.g. <200,50>
- ▷ The variable line consists of max. 24 characters.
- ▷ It is possible to jump over special characters within the variable (such as . , ; : - /).  
Referring to the above mentioned example: The decimal point at the 4th position will be jumped over while entering the variable, i.e. it is constant within the variable.
- ▷ With the key "**E**" res. "**Enter**" the entered information will be confirmed. So the information of a line that doesn't change can automatically be transferred into the next line without being entered again.
- ▷ Save the label including above mentioned variables on Memory-Card!
- ▷ To activate user's guiding:  
Therefore select the menu item "Password" out of the function menu, activate the password protection (Y) and change B to 1 (ON). Then automatically the entry function will be blocked (E = 2) and with the Memory-Card just reading only functions are allowed (MC = 1).

### 18.4.3. To print variable user's guiding

To print a label with variables user's guiding, the user's guiding has to be switched on in menu "Password" in the function menu.

- ▷ Load the label from the Memory-Card.
- ▷ Because of the user's guiding the variable is displayed immediately. In the first line of the display the help text for the variable appears; in the second line of the display the variable itself is shown. The cursor stands at the right hand position.
- ▷ Enter the new text for the variable. The entry takes place from right to left, i.e. all single characters will be pushed at the start position from right to left. When using code variables only the entered characters will be coded.
- ▷ Confirm with key **"E"** res. **"Enter"**.
- ▷ In case several variables are defined, they will be displayed one after the other. After entering the last variable and confirming with **"Enter"** the menu no. of lines / no. of labels appears:

no. of lines:	01
no. of labels:	000001

- ▷ Enter the number of labels; confirm with key **"E"** res. **"Enter"**.  
The label will be printed; then the first variable again appears in the display.
- ▷ With the keys   it is possible to step through all variables of a label.

## 18.5. Option: Scanner \*<sup>1</sup>

This option provides you the possibility to check for barcodes printed onto the label with the connected scanner. Two different operating modes are available.

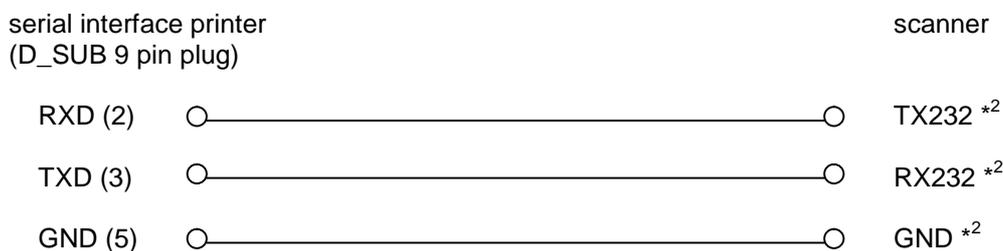
Mode 1: the contents of the printed barcode is checked. Therefore it is necessary to define the barcode to be checked as Variable Scanner. The printer compares the scanned data with the set data contents. In case of any difference a corresponding error is printed out.

Mode 2: it is only checked whether the printed barcode is readable or not. The contents of the printed barcode is not checked. In case no barcode is found onto the label res. the barcode is not readable for the scanner a corresponding error is printed out.

For activating this operating mode select menu item "Print mode" from the function menu.

### 18.5.1. Scanner connection

The scanner is equipped with a serial interface by which a communication between scanner and printer can be provided.



The laser beam is activated with the control character "STX" and disabled with "ETX".

The scanner sends after finishing the reading phase the read data res. in case no barcode can be realised the scanner sends after ETX the error message.

#### Control character

Activation laser beam/reading	'STX' printer → scanner	
Ending laser beam/reading	'ETX' printer → scanner	
Data record	a) 'SOH' xxxxx 'ETB'    scanner → printer; data read  b) 'SOH' 'CAN' 'ETB'    scanner → printer; no data read  c) 'SOH' 'BEL' 'ETB'    scanner → printer; internal scanner error	x = data value  'CAN' = 0 x 18 <sub>HEX</sub>  'BEL' = 0 x 07 <sub>HEX</sub>

\*<sup>1</sup> Please ask your distributor for information about the scanners you can use

\*<sup>2</sup> For connection assignment see the scanner manual

## 18.5.2. Activation of option scanner

The serial interface connected to the scanner is set in the function menu. Hereby the scanner settings are to observe.

scanner mode:        0: Off        (in case no scanner is connected an error message appears)  
                           1: Mode 1  
                           2: Mode 2

COM2:                selection of serial interface connected to the scanner

NoRd:                number of successive non readings – after these non readables an error is produced (1 ... 9)

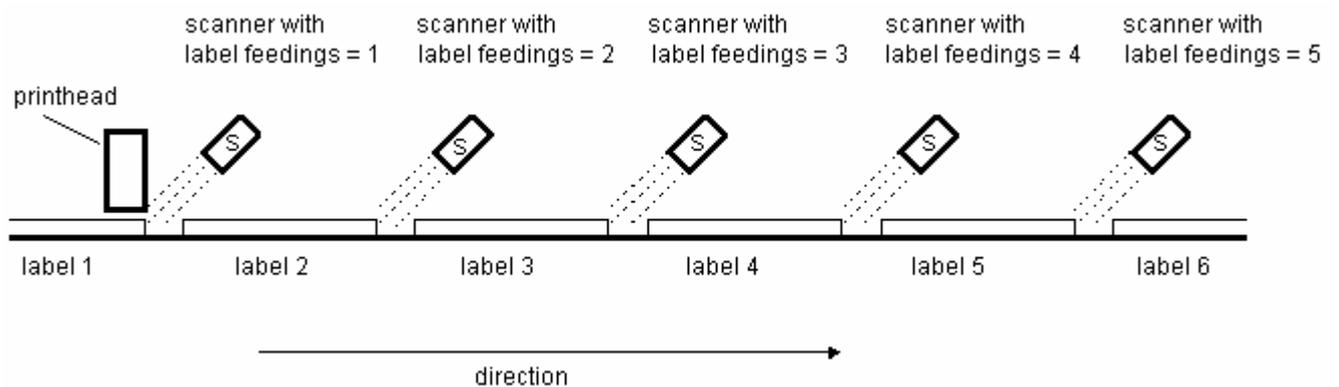
FLAB:                number of label feedings  
 (1 ... 5)

In case it is not possible to install the scanner in that way the laser beam scans the label directly after the printhead you can set herewith the number of labels between laser beam and printhead.

This setting is only necessary in mode 1.

e.g. number 1:        printed label = scanned label

e.g. number 5:        4 labels between printed and scanned label



## Mode 1

It is necessary to define the barcodes to be scanned onto a label in the mask of corresponding barcode to be checked.

- ▷ Activate key **"code"** and then press key **F**.
- ▷ Select the type of variable "scanner" with the keys  .
- ▷ Confirm your selection by pressing **"start-stop"** key  or key **"E"**.
- ▷ The following display appears:

scanner	
ON	1. defined code

- ▷ Here you have to indicate the position where the selected code has been defined in the scanner, as the scanner will join together the codes and send them to the printer in the same sequence as they have been defined in the scanner, no matter in which sequence the codes have been read by the scanner. If, however, you want to scan only one code of the label, this code can be defined as "1. defined code" no matter which type of code you have.

- ▷ Enter the values with the keys  .
- ▷ With the keys   you can step from one entry to the next.
- ▷ Confirm by pressing **"start-stop"**-key  or key **"E"**. The variable line is indicated in the mask with.

Y0027	H:15	T:30	S:1	Cv
X:011	P:0903	C:0	R:2	1

- ▷ With the keys   it is possible to step through the masks of the label and to define the codes that are to be scanned as scanner variables as described above.
- ▷ A maximum of 6 codes per label can be defined as scanner variables.

## Mode 2

This mode needs no further settings because the barcode is only checked for the legibility and not for the contents.

### 18.5.3. Possible sources of error

Error message	Error description	Possible source of error
<ul style="list-style-type: none"> <li>barcode not readable</li> </ul>	<ul style="list-style-type: none"> <li>not possible to read barcode after NoRd (see "Activation of option scanner")</li> </ul>	<ul style="list-style-type: none"> <li>installation of scanner (distance to the label, direction)</li> </ul>
<ul style="list-style-type: none"> <li>different data records</li> </ul>	<ul style="list-style-type: none"> <li>only mode 1: the scanned data value does not correspond to the prefixed data value</li> </ul>	<ul style="list-style-type: none"> <li>checking data value or</li> <li>number of FLAB not correct</li> </ul>
<ul style="list-style-type: none"> <li>system error scanner</li> </ul>	<ul style="list-style-type: none"> <li>a general error has been noticed</li> </ul>	<ul style="list-style-type: none"> <li>scanner is not or wrong connected</li> <li>wrong setting of scanner parameter (start-stop sign)</li> <li>internal scanner error (test scanner with included scanner software)</li> </ul>

## 18.6. Euro

### 18.6.1. General

It is possible to convert all currencies of countries presently involved (as at February 1999) in the monetary union into Euro.

To convert "Euro" into the corresponding national currency is also possible.

#### Official abbreviations of currencies

Currency	Abbreviation
Euro	EUR
German mark	DEM
Belgian franc	BEF
Luxembourgian franc	LUF
Spanish pesetas	ESP
French franc	FRF
Irish pound	EIP
Italian lira	ITL
Dutch guilder	NLG
Austrian schilling	ATS
Portuguese escudo	PTE
Finnish mark	FIM

#### Standard parameters for conversion

Currency	Exchange rate	Rounding mask	Figures after comma
DEM	1,955830	0,01	2
ESP	166,386000	1,00	0
FRF	6,559570	0,01	2
IEP	0,787564	0,01	2
ITL	1936,270000	1,00	0
NLG	2,203710	0,01	2
ATS	13,760300	0,01	2
PTE	200,482000	0,01	2
FIM	5,945730	0,01	2

For the thousand separator the point is used and for the comma separator a comma.

### 18.6.2. To define variable "Euro"

- ▷ The variable "Euro" is defined as follows.
- ▷ Activate key **"text"** and then press key ***F***.
- ▷ Select as type of variable "Euro" with the keys  .
- ▷ Confirm the selection by pressing **"start-stop"** key  or key **"E"**.
- ▷ The following display appears:

Field:	001
Mode:	DEM→EUR

- ▷ Set the number of field in which the amount to be converted is to place. It has to be observed that
  - the field does not refer to itself
  - no references result showing indirect to the field again.
- ▷ With the keys   it is possible to select the mode of conversion (e.g. DEM→EUR, EUR→ATS, etc.).

### 18.6.3. Conversion DM into Euro

The fifth field onto a label contains a price in DM (e.g. "Price: 99,98 DM"). Now the price has to be shown in Euro, too.

So that both of the prices are automatically updated (in case of price changes) a new field with a variable "Euro" is to add. The parameters of variable "Euro" (Standard format) are to select as follows:

- Field index: 5
- Mode: "DEM→EUR"
- Format string: "< >"

At print start (with the above mentioned parameters) the price in DM is automatically read from the fifth field and converted into Euro.

The following print-out appears:

Price: 99,98 DM	(5 th field; defined price in DM)
50,24	(converted price in Euro)

### 18.6.4. Conversion Euro into DM

At print start it is desired to enquire the price in Euro at the printer and to print it onto the label. In addition the entered price is to convert into DM automatically and also printed onto the label.

- ▷ First of all it is necessary to create a user-defined variable serving the entry of the amount in Euro (e.g. in the first field).
- ▷ Create the variable "Euro" with the following parameters:
  - Field index: 1
  - Mode: "EUR→DEM"
  - Format string: "Price in DM: < >"
- ▷ After entry of price in Euro the amount is converted automatically into DM and then printed.
- ▷ In case "134,57" is entered as Euro amount the following is printed out:

134,57	(1 st field; entered price in Euro)
Price in DM: 267,80	(converted price in DM)

## 18.6.5. User-defined variable "Euro"

### General:

Before processing the variable "Euro" calculate the term

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

and convert this term into a text whereat the quantity of figures after comma, the thousand separator, the separator for figures after comma and the rounding format can be defined by the user.

**Note:** In case the operators (A, B, C) from the above calculation are "00" it is a constant data with entries of user.  
Are the operators (A, B, C) "01 ... 99" it is a field index

The operators are pre-occupied as follows:

A: Reference of field(Field index)

**if Euro→national currency**

B: exchange rate

C: 1

**if national currency→EUR**

B: 1

C: exchange rate

### Definition:

- ▷ Activate key "text" and then press key **F**.
- ▷ Select as type of variable "Euro" with the keys  .
- ▷ Confirm the selection by pressing "start-stop" key  or key "E".
- ▷ Set the number of field in which the amount to be converted is to place (see chapter "18.6.2. To define variable").
- ▷ With the keys   it is possible to select the mode of conversion (e.g. DEM→EUR, EUR→ATS, etc.).
- ▷ With key "F2" (alphanumerical keyboard) it is possible to switch to the user-defined mode.
- ▷ The following display appears:

Field:	
Mode:	User

▷ With keys   it is possible to set the desired parameters.

TTZ:	KTZ:	RS: 0
A: 01	B: 00	C: 00
	RD: 00	

- TTZ:** Thousand separator (it is possible to select " , " ; " . " or none separator).  
The separator has an effect on the output of the calculated amount and possibly on the readin of fields.
- KTZ:** Comma separator (it is possible to select " . " or " , ").  
This separator has an effect (like the thousand separator) on the output and readin of fields.
- RS:** Rounding figures  
This figure (0-6) indicates how many figures after comma are taken into consideration onto the print-out.
- A, B, C** Operator A, B, C
- RD:** Rounding mask  
Determining the smallest unity and figure onto the result is to round

When changing into user-defined mode the parameters of the conversion mode set at last are automatically taken over.

## 19. Terminalmode

Activate the terminal function in menu "Print mode". The following settings are possible:

- "OFF"
- "ON"
- "Host Controlled"

In case the terminal function should be operated via RS-485 interface you have to activate the network and also to enter the network parameters before activating the terminal mode.

- ▷ By pressing key **F** it is possible to pass from online-mode to offline-mode of the printer. This is also possible in case of an active print order.
- ▷ After activating the terminal the text "OFFLINE" as well as the status are displayed in the first line.

<b>OFFLINE</b>	<b>O 03 I</b>

- ▷ In case no print order is active you can pass through the function menu by pressing key .
- ▷ An active print order can be stopped by pressing the "start-stop" key . It is also possible to start the print order again.
- ▷ By pressing key  you can cancel a printer order.
- ▷ In case of an active print order the following display appears:

<b>OFFLINE</b>	<b>O 03 D</b>
Soll:xxxxxxx	Ist:xxxxxxx

- ▷ By pressing key **F** it is possible to connect the printer with the network or the RS-232 interface.
- ▷ The following display appears:

<b>Online</b>	<b>- 03 I</b>

In case the PC recognizes the printer the input request of the PC is shown in the display. In the first line of the display a help text (max. 19 characters) is indicated (statement, input request, ...). This help text can be controlled by the PC. In the first line of the display also a status (4 characters) is shown.

Enter article no. - 03 I

#### Meaning of status:

Network status – active CV-Net is	Network address	Printer status
A - active S - selfactive - - passive	01-99	I - Idle S - stopped D - printing W – waiting

#### Function keys

For the printer control in online-mode it is only possible to use following keys ; , , .

By pressing key  the printer pass through the offline-mode. The other keys have their initial functions.

The special function keys (TEXT, CODE, MEMO, QUANT ...) have no function in the online-mode. They can only be used for the entry (e.g. key "F4": → "(F4)") and are evaluated directly by the host. In case of an inactive print order in the offline-mode it is possible to make the usual entries by using the function keys (TEXT, CODE, MEMO, QUANT ...).

In case of activating the network without terminal function the display in the main menu changes.

O128-12	N:01
Version xx.x	-

In the first line the printer type as well as the network address are indicated. The second line shows the software version and status of network.

By pressing key  you can pass from online-mode to the offline-mode.

## 20. CV-NET

To activate the network the printer has to be configured by the keyboard.

- ▷ Press key **F** to enter the function menu and pass to menu "CV-NET RS485" with key .

- ▷ The following display appears:

CV-NET:	OFF	MODE: HALF
ADR: 01	COM: 2	

**ON res. OFF**      Network mode can be switched ON/OFF.  
**ADR:**              (1 ... 99)  
                          Printer address. Each address may be assigned only once within the network.

**COM 1 res. 2:**    Interface by which the network is operated.  
**MODE:**            Half res Full (duplex)  
                          Protocol of data transmission.

- ▷ Set the network parameters and confirm with key .

**Note:**            If the network is activated, the display in the main menu will change. In the first line the printer type and the network address are indicated, in the second line the software version, the printer status as well as the network status.

- ▷ To deactivate the network press key **F** to move again to the function menu.
- ▷ Press key  to switch to menu "CV-NET".
- ▷ With keys   it is now possible to select OFFLINE.

## 21. Phantom field

Text and code fields can be defined as phantom fields, i.e. as non printable fields. They are created in the same way as standard fields but will not be printed on the label. Phantom fields are defined in the corresponding mask entry.

### 21.1. Mask entry text

After activating key **"text"** the following text mask appears on the display:

Y0020	EY:02	T:01	S:02	T
X:020	EX:02	F:03	R:0	1

With the keys **"memo"** (foil keyboard) res. **"F6"** (alphanumerical keyboard) it can be changed between "T" and "t", whereby "t" defines the phantom field.

Y0020	EY:02	T:01	S:02	t
X:020	EX:02	F:03	R:0	1

If a text field is defined as a phantom field, the mask parameters X, Y, EX, EY, F, S and R are without any significance.

### 21.2. Mask entry code

After activating key **"code"** the following code mask appears on the display:

Y0020	H:02	T:30	S:1	C
X:040	P:0903	C:3	R:0	1

With the keys **"memo"** (foil keyboard) res. **"F6"** (alphanumerical keyboard) it can be changed between "C" and "c", whereby "c" defines the phantom field.

Y0020	H:02	T:30	S:1	c
X:040	P:0903	C:3	R:0	1

If a code field is defined as a phantom field, the mask parameters X, Y, H, P, S and R are without any significance.

## 22. Concatenated fields

It is possible to concatenate various fields of a label.

In this case the following entry has to be made in entry of text res. code:

```
=SC ( p1 ; p2 ; pn )
```

=SC                    identification for concatenated field  
p1...pn                specification of the elements (field number or constant text)

The individual elements have to be separated by ';'.  
They may have the following formats:

- field reference
- constant text

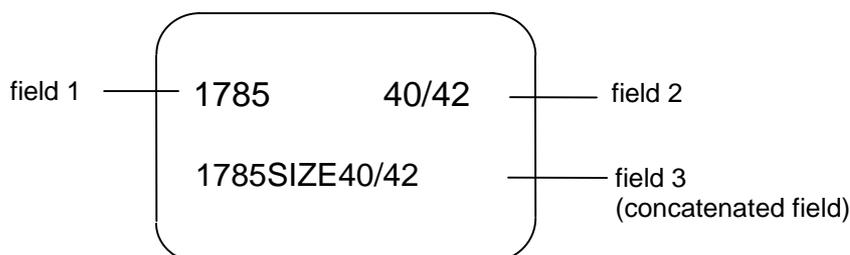
The field reference is the field number. This is entered without leading '0'.  
A constant text consists of one or more characters included in ". In case the character to be printed is a " or the backslash symbol (\) the escape frequency \\" res. \\ is to be used.

### Example:

field 1:	text entry:	1785
field 2:	text entry:	40/42
field 3:	entry of concatenated field:	=SC(1;"SIZE";2)

field 3 will be printed as follows:

1785SIZE40/42



**Note:** Reference fields may be constant texts or variables but no concatenated fields.

## 23. Real Time Clock (RTC)

### 23.1. General

The RTC (Real Time Clock) supplies the following features:

1. actual time
2. actual date
3. actual week-day

This clock is crystal-stabilised and adjusts the leap-years automatically.

### 23.2. Display of clock

- ▷ Press key **F** to get into function menu and pass with key  to the menu item "Date/Time".
- ▷ After activating key "**start-stop**"  or "**E**" the following display appears:

Actual time		
11:12:95	14:27:06	01PM

'11.12.95'	=	<b>Date</b> (Day, Month, Year)
'14:27:06'	=	<b>Time</b> (Hours, Minutes, Seconds)
'01'	=	<b>Week-day</b> (00 - Sunday .... 06 - Saturday)

## 23.3. Setting of time

- ▷ Activate key **"start-stop"**  when in menu "actual time" to get into the menu item "Set Date/Time". The following text appears on the display:

Set Date/Time  
 cursor 111:12:95    14:27:06    01PM

The cursor can be moved to the figure to be set either by F1 ← or F2 →.  
Enter the desired figures with the keys.

- ▷ By activating the key **"start-stop"**  or **"E"** the changed time will be taken over into the Real Time Clock and the actual time will be adjusted.

If the key  or **"C"** is pressed, the actual time will not be taken over, it only shows the basic menu.

## 24. Control inputs and outputs

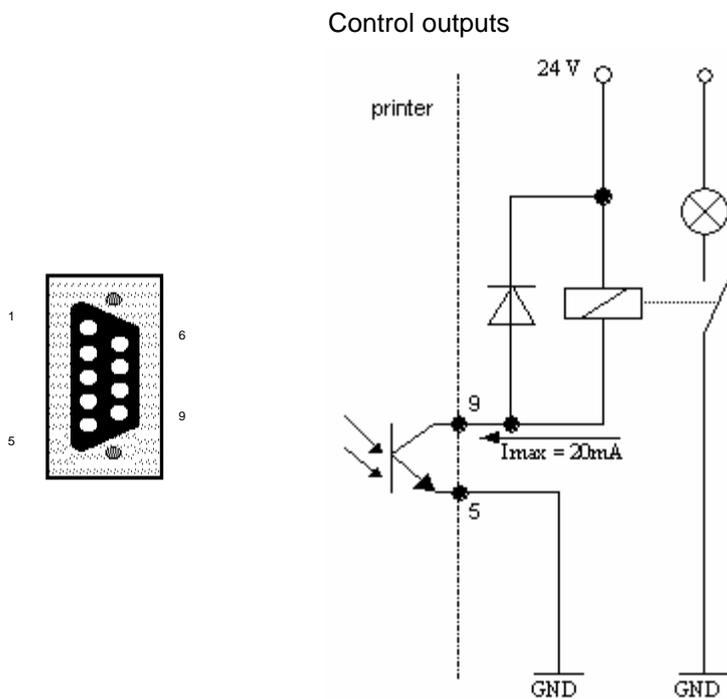
### 24.1. Output Signals

(9-term. DSUB-receptacle)

This option is not part of the standard unit and has to be ordered separately.

All signals-outputs are performed by optical couplers.  
 If a signal-output is activated an approx. current of  $I_{max} = 20mA$  can be switched through.

Example:



Pin	Signal description
 Pin 9 Pin 5	Output for ribbon and label error
 Pin 8 Pin 7	Signal for "print order"; this signal will be activated with each print order and will be set back at the end of the print order
 Pin 6 Pin 2	Signal for "Generation active"
 Pin 4 Pin 3	Signal for "Printing of labels"

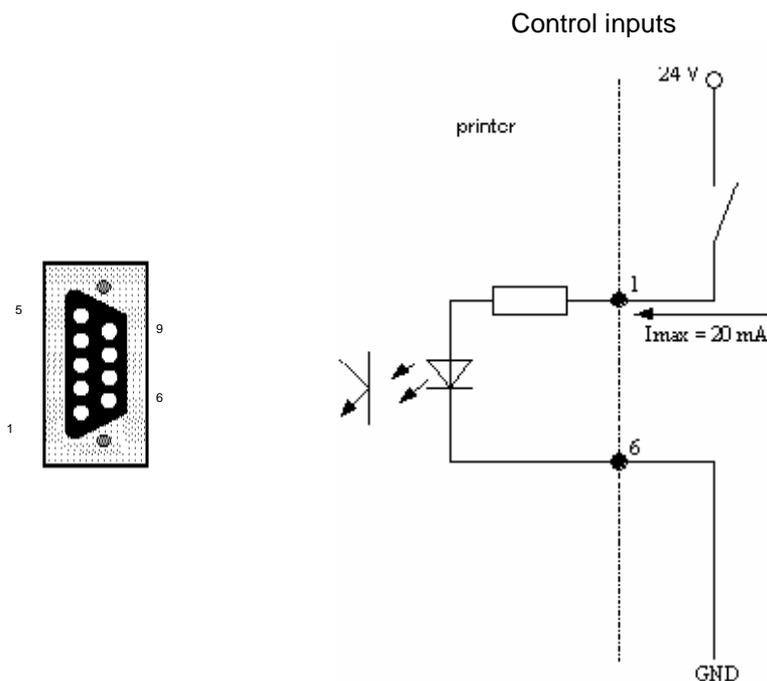
## 24.2. Control inputs

(9-term. DSUB-plug)

This option is not part of the standard unit and has to be ordered separately.

All control inputs are galvanic separated and have to be fed by an external power supply. All signals are "high" active.

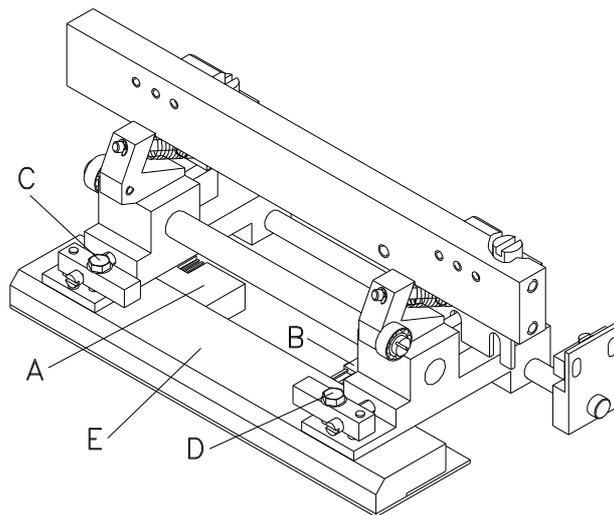
Example:



Pin		Description of signal
1	+	Control input for single label dispensing
6	-	

## 25. Service of thermal printhead

### 25.1. Exchange of printhead



**Attention:** For exchange of printhead the ESD regulations have to be observed!

- ▷ Switch off the printer and plug it out.
- ▷ Open up print module.
- ▷ Remove printhead cable (A, B) with plugs.
- ▷ Remove the screws (C, D) by means of an allen key 5,5 mm.
- ▷ Take off the printhead (E).

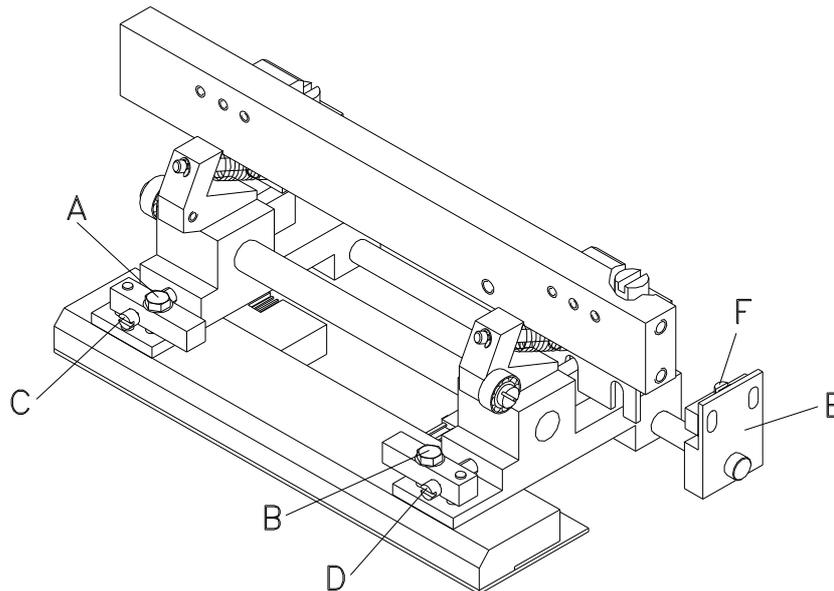
#### Installation:

- ▷ Installation of the new printhead and the other components in opposite order.
- ▷ Switch on the print unit.
- ▷ In function menu "Service Functions" menu item "Heater Resistance" enter the resistance value of the new printhead. You will find this value on the name plate of the printhead ( $R = XXXX \Omega$ ).
- ▷ Test the position of the printhead by making a test print. In case the test print does not come up to your satisfaction, the printhead has to be adjusted!

**Attention:** Do not touch the contacts of the printhead!

## 25.2. Adjustment of printhead

For the adjustment of parallelity and pressure the print module has to be taken off the case. Remove the screws and the chassis base. It is recommended to connect the print module by means of an extension cable (in case of availability).



### 25.2.1. Parallelity

- ▷ Loosen screws (A, B) approx ½ turn with an allen key 5,5 mm.
- ▷ Adjust parallelity by the screws (C, D). If you turn in clockwise direction the printhead will move backwards, if you turn against clockwise direction it will move forward.
- ▷ Depending on the print quality of the test print adjust more until the print quality is correct.
- ▷ Fasten the 4 screws (A, B) again.
- ▷ Start print order with approx. 5 - 10 labels and check the correct, wrinkle free ribbon. If the ribbon shows wrinkles check the parallelity once again.

### 25.2.2. Pressure balance right/left

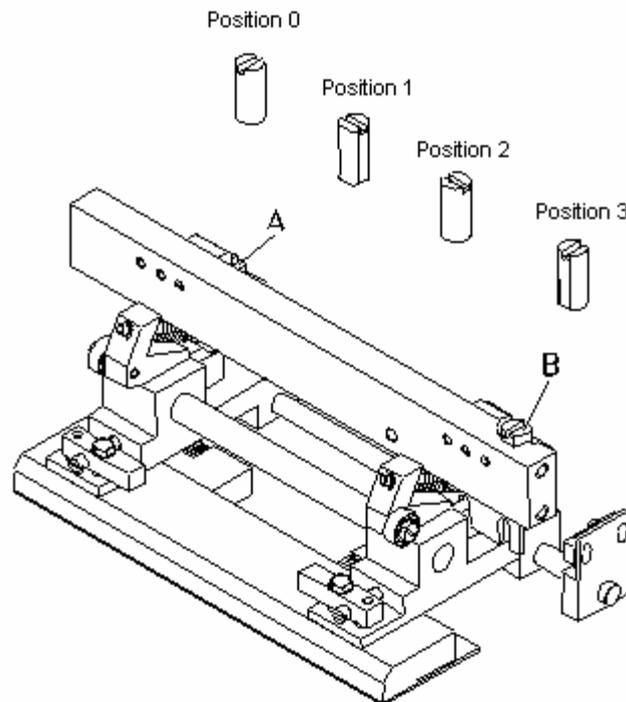
In case of a non equal strong pressure after adjusting the parallelity for the complete printhead width it is possible to arrange the balance by means of an adjusting unit (E) as follows:

- ▷ Turn the adjusting screw (F) in clockwise direction – for a stronger pressure at the right side.
- ▷ Turn the adjusting screw (F) against clockwise direction – for a weaker pressure the right side.

### 25.2.3. Pressure

Please avoid the increase of printhead pressure as this results in damages of printhead res. reduces its life.

The pressure is adjusted directly at works according to the specification of printhead.



By means of the adjusting screws (A, B) it is possible to adjust the pressure of printhead in 4 positions. In case no screwdriver is available the adjusting screws can also be moved with a coin. Important for recognition of the position is the plate fixed at the adjusting screw.

The following pressure positions are possible:

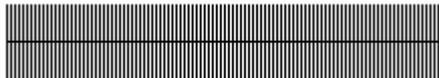
- Position 0 = weak pressure (3,6 kg) according to the printhead specification from works
- Position 1 = slightly stronger pressure (4 kg); approx. 4 N higher than position 0
- Position 2 = even stronger pressure (4,5 kg); approx. 9 N higher than position 0
- Position 3 = strongest pressure (5 kg); approx. 14 N higher than position 0

## 25.3. Cleaning of printhead and print plate

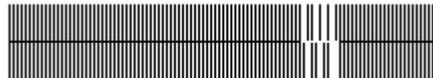
Principally it is advisable and necessary to clean the printhead in regular intervals depending on the printer's operating hours and its environment (e.g. dust etc.).

With a test print it can be easily found out whether the printhead is soiled or defective.

a) printhead is ok.



b) printhead is defective/soiled



**While cleaning the printhead the printer has to be switched off!**

- Open up print module.
- The part to be cleaned is situated at the front edge of the printhead. Cleaning only with dry cleaning solvent. As expedient a close-woven cotton cloth is recommended. In case this procedure is not sufficient the printhead can be cleaned with a special cleaning foil (to be obtained from us). When cleaning the printhead with this foil lead it only from the left to the right side.

**Attention:** The printhead is very sensitive, therefore scratching res. strong rubbing is absolutely to be avoided. Rough or hard subjects may not be used for cleaning!

**Cleaning of pressure roll:**

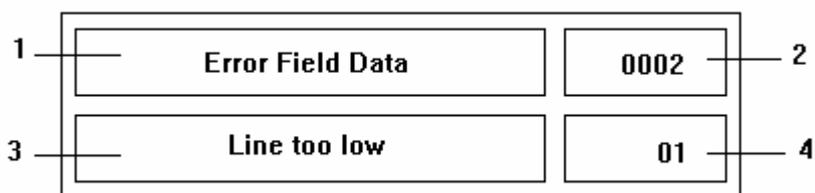
In certain intervals the pressure roll has to be cleaned with spirit (dust, soil etc.).

## 26. Possible sources of error

### 26.1. Display

In case of error the following display will appear:

Example:



1	Error categories	
	<ul style="list-style-type: none"> <li>• unknown error</li> <li>• label error</li> <li>• system error</li> <li>• data error</li> <li>• ribbon error</li> </ul>	<ul style="list-style-type: none"> <li>• error interface</li> <li>• error field data</li> <li>• error memory</li> <li>• error parameter</li> <li>• error print parameter</li> </ul>
2	Number of error	
	The number of error is indicated, see table of errors chapter "26.2. Table of errors".	
3	Text	
	Specification of the error occurred.	
4	Line number, MC-Slot	
	Indication where res. in which line the error occurred.	

## 26.2. Table of errors

number of error	possible causes	how to solve the problem
1	<ul style="list-style-type: none"> <li>• line completely/partly projects the upper label rim</li> </ul>	<ul style="list-style-type: none"> <li>• place the line in a lower position (Y↑)</li> <li>• check rotation, font</li> </ul>
2	<ul style="list-style-type: none"> <li>• line completely/partly projects the lower label rim</li> </ul>	<ul style="list-style-type: none"> <li>• place the line in a higher position (Y↓)</li> <li>• check rotation, font</li> </ul>
3	<ul style="list-style-type: none"> <li>• line completely/partly projects the left label rim</li> </ul>	<ul style="list-style-type: none"> <li>• move the line to the right (X↑)</li> <li>• check rotation, font</li> </ul>
4	<ul style="list-style-type: none"> <li>• line completely/partly projects the right label rim</li> </ul>	<ul style="list-style-type: none"> <li>• move the line to the left (X↓)</li> <li>• check rotation, font</li> </ul>
5	<ul style="list-style-type: none"> <li>• one/more characters of the text is/are not included in the selected font</li> </ul>	<ul style="list-style-type: none"> <li>• change text</li> <li>• change font</li> </ul>
6	<ul style="list-style-type: none"> <li>• one/more characters of the text is/are not included in the selected font</li> </ul>	<ul style="list-style-type: none"> <li>• change text</li> <li>• change font</li> </ul>
7	<ul style="list-style-type: none"> <li>• impossible to match the text into the selected field</li> </ul>	<ul style="list-style-type: none"> <li>• check field size</li> </ul>
8	<ul style="list-style-type: none"> <li>• internal error</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor</li> </ul>
9	<ul style="list-style-type: none"> <li>• the selected type of text is not available</li> </ul>	<ul style="list-style-type: none"> <li>• check type of text</li> </ul>
10	<ul style="list-style-type: none"> <li>• the selected code is not available</li> </ul>	<ul style="list-style-type: none"> <li>• check type of code</li> </ul>
11	<ul style="list-style-type: none"> <li>• the selected position is not available</li> </ul>	<ul style="list-style-type: none"> <li>• check position</li> </ul>
12	<ul style="list-style-type: none"> <li>• the selected font is not available</li> </ul>	<ul style="list-style-type: none"> <li>• check font</li> </ul>
13	<ul style="list-style-type: none"> <li>• the font EPROM does not support the selected language</li> </ul>	<ul style="list-style-type: none"> <li>• check language</li> <li>• Please contact your distributor</li> </ul>
14	<ul style="list-style-type: none"> <li>• see error no. 5</li> </ul>	
15	<ul style="list-style-type: none"> <li>• error in font EPROM</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor</li> </ul>
16	<ul style="list-style-type: none"> <li>• error in font EPROM</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor</li> </ul>
17	<ul style="list-style-type: none"> <li>• error in font EPROM</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor</li> </ul>
18	<ul style="list-style-type: none"> <li>• error in font EPROM</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor</li> </ul>



<b>number of error</b>	<b>possible causes</b>	<b>how to solve the problem</b>
19	<ul style="list-style-type: none"> <li>when measuring label the difference between label and backing paper is too small</li> </ul>	<ul style="list-style-type: none"> <li>adjust label photocell (distributor)</li> <li>change sensitivity</li> </ul>
20	<ul style="list-style-type: none"> <li>when measuring no label found</li> <li>the selected label length is too high</li> </ul>	<ul style="list-style-type: none"> <li>remeasure</li> <li>check label length</li> </ul>
21	<ul style="list-style-type: none"> <li>while printing no marking/gap found</li> </ul>	<ul style="list-style-type: none"> <li>check label</li> </ul>
22	<ul style="list-style-type: none"> <li>while printing ribbon is empty</li> <li>defective ribbon photocell</li> </ul>	<ul style="list-style-type: none"> <li>change ribbon</li> <li>check ribbon photocell in menu service</li> <li>check ribbon sensitivity</li> </ul>
23	<ul style="list-style-type: none"> <li>loss of data at serial interface (RS 232)</li> </ul>	<ul style="list-style-type: none"> <li>check Baudrate</li> <li>check cables (on printer and PC)</li> </ul>
24	<ul style="list-style-type: none"> <li>parity error</li> </ul>	<ul style="list-style-type: none"> <li>check parity</li> <li>check Baudrate</li> <li>check cables (on printer and PC)</li> </ul>
25	<ul style="list-style-type: none"> <li>stopbit error</li> </ul>	<ul style="list-style-type: none"> <li>check stopbits</li> <li>check Baudrate</li> <li>check cables (on printer and PC)</li> </ul>
26	<ul style="list-style-type: none"> <li>received line number invalid with RS 232 / Centronics</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>
27	<ul style="list-style-type: none"> <li>invalid length of received mask statement</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>
28	<ul style="list-style-type: none"> <li>invalid mask statement</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>
29	<ul style="list-style-type: none"> <li>missing ETB</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>
30	<ul style="list-style-type: none"> <li>invalid length of received code statement</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>
31	<ul style="list-style-type: none"> <li>invalid length of received command statement</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>

<b>number of error</b>	<b>possible causes</b>	<b>how to solve the problem</b>
32	<ul style="list-style-type: none"> <li>illegal statement</li> </ul>	<ul style="list-style-type: none"> <li>check data sent</li> <li>connection PC - printer</li> </ul>
33	<ul style="list-style-type: none"> <li>entered/received check digit is faulty in check digit control</li> </ul>	<ul style="list-style-type: none"> <li>recalculate check digit</li> <li>check code data</li> </ul>
34	<ul style="list-style-type: none"> <li>selected SC code invalid with EAN/UPC</li> </ul>	<ul style="list-style-type: none"> <li>check SC code</li> </ul>
35	<ul style="list-style-type: none"> <li>entered number of characters invalid with EAN/UPC Code &lt; 12; &gt; 13</li> </ul>	<ul style="list-style-type: none"> <li>check number of characters</li> </ul>
36	<ul style="list-style-type: none"> <li>type of check digit not available with selected code</li> </ul>	<ul style="list-style-type: none"> <li>check digit control</li> <li>check type of code</li> </ul>
37	<ul style="list-style-type: none"> <li>not readable printer parameter</li> </ul>	<ul style="list-style-type: none"> <li>check serial EEPROM (service)</li> </ul>
38	<ul style="list-style-type: none"> <li>printer parameter cannot be stored</li> </ul>	<ul style="list-style-type: none"> <li>check serial EEPROM (service)</li> </ul>
39	<ul style="list-style-type: none"> <li>selected zooming factor invalid</li> </ul>	<ul style="list-style-type: none"> <li>check zooming factor</li> </ul>
40	<ul style="list-style-type: none"> <li>entered sign of offset invalid</li> </ul>	<ul style="list-style-type: none"> <li>check offset value</li> </ul>
41	<ul style="list-style-type: none"> <li>entered offset value invalid</li> </ul>	<ul style="list-style-type: none"> <li>check offset value</li> </ul>
42	<ul style="list-style-type: none"> <li>printhead temperature too high</li> <li>defective temperature sensor of printhead</li> </ul>	<ul style="list-style-type: none"> <li>contrast ↓</li> <li>change printhead (service)</li> </ul>
43	<ul style="list-style-type: none"> <li>error cutter, paper jam</li> </ul>	<ul style="list-style-type: none"> <li>check label guiding</li> <li>check cutter</li> </ul>
44	<ul style="list-style-type: none"> <li>entered characters are not conform to the characters allowed by the application identifiers</li> </ul>	<ul style="list-style-type: none"> <li>check code data</li> </ul>
45	<ul style="list-style-type: none"> <li>application identifier not available with EAN 128</li> </ul>	<ul style="list-style-type: none"> <li>check code data</li> </ul>
46	<ul style="list-style-type: none"> <li>continuous mode selected, printer received a command statement via interface, where number of lines &lt; 2. Label length is missing.</li> </ul>	<ul style="list-style-type: none"> <li>don't select continuous mode or transmit dummy line with Y-coordinates = label length (see interface manual)</li> </ul>
47	<ul style="list-style-type: none"> <li>connection CPU - Memory-Card interface has been interrupted</li> <li>Memory-Card interface defective</li> </ul>	<ul style="list-style-type: none"> <li>check connection CPU - Memory-Card interface</li> <li>check Memory-Card interface</li> </ul>

<b>number of error</b>	<b>possible causes</b>	<b>how to solve the problem</b>
48	<ul style="list-style-type: none"> <li>Memory-Card not or not correctly entered</li> </ul>	<ul style="list-style-type: none"> <li>enter Memory-Card</li> </ul>
49	<ul style="list-style-type: none"> <li>wrong type of Memory-Card entered (8/16 Bit)</li> </ul>	<ul style="list-style-type: none"> <li>check card type (has to be 16 Bit)</li> </ul>
50	<ul style="list-style-type: none"> <li>charge of battery / accumulators can cause loss of data on the Memory-Card</li> </ul>	<ul style="list-style-type: none"> <li>change battery (attention, loss of data!)</li> </ul>
51	<ul style="list-style-type: none"> <li>battery / accumulators empty</li> </ul>	<ul style="list-style-type: none"> <li>change battery (attention, loss of data!)</li> </ul>
52	<ul style="list-style-type: none"> <li>"Write-Protect"-switch on Memory-Card is on position "ON"</li> </ul>	<ul style="list-style-type: none"> <li>deactivated write protection</li> </ul>
53	<ul style="list-style-type: none"> <li>Memory-Card not formatted</li> </ul>	<ul style="list-style-type: none"> <li>format Memory-Card</li> </ul>
54	<ul style="list-style-type: none"> <li>no files on Memory-Card</li> </ul>	
55	<ul style="list-style-type: none"> <li>file doesn't exist on Memory-Card</li> </ul>	<ul style="list-style-type: none"> <li>search through the contents of the Memory- Card and select the desired file name</li> <li>check directory and device</li> </ul>
56	<ul style="list-style-type: none"> <li>invalid characters in the file name</li> </ul>	<ul style="list-style-type: none"> <li>check characters</li> </ul>
57	<ul style="list-style-type: none"> <li>max. storage space of Memory-Card is reached</li> </ul>	<ul style="list-style-type: none"> <li>use a new Memory-Card</li> <li>delete files on Memory-Card that are no longer needed</li> </ul>
58	<ul style="list-style-type: none"> <li>max. number of main directory entries is reached</li> </ul>	<ul style="list-style-type: none"> <li>at least one main directory entry has to be deleted, then create subdirectories</li> </ul>
59	<ul style="list-style-type: none"> <li>selected file includes no graphic dates</li> </ul>	<ul style="list-style-type: none"> <li>check file name</li> </ul>
60	<ul style="list-style-type: none"> <li>selected file includes no label dates</li> </ul>	<ul style="list-style-type: none"> <li>check file name</li> </ul>
61	<ul style="list-style-type: none"> <li>invalid directory name</li> </ul>	<ul style="list-style-type: none"> <li>check directory name</li> </ul>
62	<ul style="list-style-type: none"> <li>selected directory already exists</li> </ul>	<ul style="list-style-type: none"> <li>check directory name</li> </ul>
63	<ul style="list-style-type: none"> <li>you tried to delete the actual directory</li> </ul>	<ul style="list-style-type: none"> <li>check directory name</li> </ul>
64	<ul style="list-style-type: none"> <li>directory to be deleted is not empty</li> </ul>	<ul style="list-style-type: none"> <li>first delete all files in the directory</li> </ul>
65	<ul style="list-style-type: none"> <li>first delete all files in the directory</li> </ul>	<ul style="list-style-type: none"> <li>check directory name</li> </ul>

<b>number of error</b>	<b>possible causes</b>	<b>how to solve the problem</b>
66	<ul style="list-style-type: none"> <li>• RTC function has been selected, though no RTC is installed in the printer</li> <li>• RTC defective</li> </ul>	<ul style="list-style-type: none"> <li>• check selected function, add RTC ram</li> <li>• exchange RTC ram</li> </ul>
67	<ul style="list-style-type: none"> <li>• no print memory found</li> </ul>	<ul style="list-style-type: none"> <li>• check memory standard on CPU board</li> </ul>
68	<ul style="list-style-type: none"> <li>• max. storage space of Memory-Card is reached</li> </ul>	<ul style="list-style-type: none"> <li>• delete files that are no longer needed</li> </ul>
69	<ul style="list-style-type: none"> <li>• internal error</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor.</li> </ul>
70	<ul style="list-style-type: none"> <li>• wrong format entered for variable line</li> </ul>	<ul style="list-style-type: none"> <li>• check format string</li> </ul>
71	<ul style="list-style-type: none"> <li>• wrong format for date / time</li> </ul>	<ul style="list-style-type: none"> <li>• check format string</li> </ul>
72*		
73*		
74*		
75*		
76	<ul style="list-style-type: none"> <li>• different software standard of graphics processor / main processor</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor.</li> </ul>
77	<ul style="list-style-type: none"> <li>• different software standard of graphics processor / main processor or hardware error</li> </ul>	<ul style="list-style-type: none"> <li>• Please contact your distributor.</li> </ul>
78	<ul style="list-style-type: none"> <li>• connected barcode scanner signals device error</li> </ul>	<ul style="list-style-type: none"> <li>• check connection scanner / printer</li> <li>• check scanner, possibly defective</li> </ul>
79	<ul style="list-style-type: none"> <li>• bad print quality</li> <li>• printhead completely soiled or defective</li> <li>• printing speed too high</li> </ul>	<ul style="list-style-type: none"> <li>• increase contrast</li> <li>• clean printhead or exchange if necessary</li> <li>• decrease printing speed</li> </ul>
80	<ul style="list-style-type: none"> <li>• scanned character sequence is not identical with character sequence to be printed, due to possibly missing dots a false barcode was printed</li> </ul>	<ul style="list-style-type: none"> <li>• exchange printhead</li> </ul>
81	<ul style="list-style-type: none"> <li>• definition of counter variables invalid, entry of inadmissible characters as counter</li> </ul>	<ul style="list-style-type: none"> <li>• check characters of counter in text statement</li> <li>• check counting mode</li> </ul>

\* IDS error

## 27. Technical data

<b>Thermal-Transfer Printer</b>	<b>optimo 128</b>	<b>optimo 150</b>	<b>optimo 213</b>
Print Label width	max. 155 mm	max. 155 mm	max. 300 mm
Print width	128 mm	150 mm	213 mm
max. Label height	standard: 320 mm option: 770 mm (1 MB-extension of memory)	standard: 250 mm option: 614 mm (1 MB-extension of memory)	standard: 190 mm option: 460 mm (1 MB-extension of memory)
Label material	max. 220 gr/m <sup>2</sup> (stronger material on demand)		
Resolution	12 dot / mm = 300 dpi		
Print speed	50 - 140 mm/s Optimo 213: 100 mm/s		
Text Standard fonts	5 scaleable BITSTREAM® fonts (e.g. Helvetica, Swiss, Baskerville, Brush Script) 6 proportional fonts 6 not proportional fonts		
Character height	min. 1 mm / max. 99 mm		
Barcode in all four directions	2/5 Interleaved ITF 14/16 Code 128 Code 128 A Code 128 B Codabar Code 39 Code 93 Code 39 extended Pharmacode <u>other barcodes on demand</u>		EAN 8 EAN 13 EAN 128 UPC-A UPC-E PZN-Code EAN ADD ON PDF 417 MAXICODE
Memory Print Memory-Card (PCMCIA -type 1)	max. 4 MB 256K, 512K, 1 MB, 2 MB		
Label formation	stand-alone and online		
Interface	RS 232 / 2400....19200 Baud XON-XOFF and DTR record Centronics		
Label roll dimensions	200 / 40 (75) mm Optimo 213: 250 / 40 /75) mm		
Case dimensions height x width x depth	160 x 455 x 410 mm Optimo 213: 510 x 180 x 420 mm		
Weight	20 kg Optimo 213: 25 kg		
Power requirement Voltage	230 V, 50/60 Hz Option: 115 V		
Power consumption	max. 380 VA		
Operating conditions Operating temperature rel. humidity range	5 - 45° C max. 80 %		

Technical modifications are subject to change

## 28. Recommendation for consumables

- Label materials
- Thermal-transfer ribbons

The most important element of thermal and thermal transfer-printers is the printhead. Especially the printhead is extremely exposed to wear and tear. Therefore the following criteria should be considered when selecting consumables like labels and thermal-transfer ribbons:

- Label materials

In thermal print mode the printhead is directly in contact with the label material to be printed on. Therefore the surface of this material should be very smooth ("topcoated") to keep the mechanical abrasion as small as possible. It is recommended to use exclusively label material with inner winding that we have generally released for our printers.

Principally the pre-set printhead pressure should not be essentially increased as hereby the lifetime of the printhead can be extremely reduced.

- Thermal-transfer ribbons

It is recommended to use only thermal-transfer ribbons with outer winding that have been generally released for our printing systems. Thereby the high electrostatic charge of low price ribbons has to be considered. The emerging electric tension can destroy the printhead or other electronic parts.

For the various requirements as regards smear and scratch proof ribbons, resistance against solvents or temperature please contact us.

When using transfer ribbon of inferior quality the coating flakes off and therefore printhead and sensors get dirty earlier.

The colour of some transfer ribbons runs onto the side of backing paper and therefore particularly the printhead gets dirty. All these effects lead to a strong decrease of print quality.

It depends on the label material what kind of transfer ribbon is to be used. The print quality principally depends on a correct combination of the materials.

The use of wrong materials can lead to printer malfunctions and the guarantee can expire.

For this thermal-transfer-printer it is necessary to use special coated transfer ribbon. The use of this transfer ribbon results in a better print quality despite using a high print speed. Less energy is needed and this protects the printhead.

For orders, please indicate the article-no. and the corresponding width (35 - 217 mm).

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## 29. Operating conditions

### 29.1. Introduction

**Before initial operation and during operation** these operating conditions have to be observed to guarantee safe and interference-free service of our printers.

Therefore please carefully read these operating conditions.

In case of questions referring to the practical handling of these conditions please contact us or your service station.

### 29.2. General conditions

- Transport and storage of our printers exclusively in original packing.
- Installing and initial operation of printers *only when operating conditions are fulfilled*.
- Initial operation, programming, operation, cleaning and service of our printers only after careful study of manuals.
- Operation only by specially trained persons.  
It is recommended to perform trainings regularly.
- These indications are also valid for equipment not supplied by us.
- Only use original spare / exchange parts.

### 29.3. Conditions for place of installation

- The place of installation has to be plain and free of vibration. Currents of air to be avoided.
- The printers have to be installed to ensure optimal operation and servicing.

## 29.4. Power supply

### 29.4.1. Installation of power supply

The installation of the power supply to connect our printers has to be effected according to the international rules and regulations, especially the recommendations of one of the three following commissions:

- International Electronic Commission (IEC)
- European Committee for Electrotechnical Standardisation (CENELEC)
- Verband Deutscher Elektrotechniker (VDE)

Our printers are constructed according to VDE and have to be connected to a grounded conductor. The power supply has to be equipped with a grounded conductor to eliminate internal interfering voltage.

### 29.4.2. Technical data of power supply

power line voltage and power line frequency:	see type plate or chapter "27. Technical data"
allowable tolerance of power line voltage:	+ 6 % to - 10 % of nominal value
allowable tolerance of power line frequency:	+ 2 % to - 2 % of nominal value
allowable distortion factor of power line voltage:	$\leq 5 \%$

#### Anti-interference measures:

In case your net is infected (e.g. by using thyristor controlled machines) anti-interference-measures have to be taken, e.g.:

- provide separate power supply for our printers
- in case of problems please connect capacity-decoupled isolation transformer or similar interference suppressor in front of our printers.

## 29.5. Stray radiation and immunity from disturbance

- Stray radiation according to EN 50081-1
- Immunity from disturbance according to EN 50082-1
- Stray radiation according to IEC 801-3
- Electrostatic discharge according to IEC 801-2
- line connected disturbance according to IEC 801-4

## 29.6. Connecting lines to external machines

- All connecting lines have to be guided in shielded lines. The shielding has to be connected on both sides to the connector shell.
- It is not allowed to guide lines parallel to power lines. If a parallel guiding cannot be avoided a distance of at least 0,5 m has to be observed.
- Temperature of lines between: - 15 to + 80 °C.
- It is only allowed to connect devices which fulfill the request 'Safety Extra Low Voltage' (SELV). These are generally devices which are checked corresponding to EN 60950.

## 29.7. Installation data lines

### Allowable lines:

Shielded line:                    4 x 2 x 0,14 mm<sup>2</sup> ( 4 x 2 x AWG 26)  
     6 x 2 x 0,14 mm<sup>2</sup> ( 6 x 2 x AWG 26)  
     12 x 2 x 0,14 mm<sup>2</sup> (12 x 2 x AWG 26)

Sending and receiving lines have to be twisted in pairs.

**Max. line length:**            with interface V 24 (RS232C)            15 m (with shield)  
     with Centronics                            3 m (with shield)

## 29.8. Air convection

In order to avoid inadmissible heating free air convection has to be ensured.

## 29.9. EG trademark control

Basis for EG trademark control:            IEC 801  
     EN 55011  
     EN 50081-1  
     EN 50082-1  
     EN 60950

## 29.10. Limit values for protection, temperature and air humidity

equipment family:	thermal-transfer printer	
protection according to IP:	20	
ambient temperature °C (operation):	min. + 5	max. + 45
ambient temperature °C (storage):	min. - 20	max. + 60
relative air humidity % (operation):	max. 80	
relative air humidity % (storage):	max. 80 (bedewing of printers not allowed)	

## 29.11. Guarantee

We do not take any responsibility for damage caused by:

- ignoring our operating conditions and operating manual.
- incorrect electric installation of environment.
- building alterations of our printers.
- incorrect programming and operation.
- not performed data protection.
- using of not original spare parts and accessories.
- natural wear and tear.

When (re)installing or programming our printers please control the new setting by test running and test printing. Herewith you avoid faulty results, reports and evaluation.

Only specially trained staff are allowed to operate the printers.

Control the correct handling of our products and repeat training.

We do not guarantee that all features described in this manual exist in all models. Caused by our efforts to continue further development and improvement, technical data might change without notice.

By further developments or regulations of the country it is possible that illustrations and examples shown in the manuals are different from the delivered modification.