

Operating Manual – English

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## Thermal Transfer Printer Pica Series



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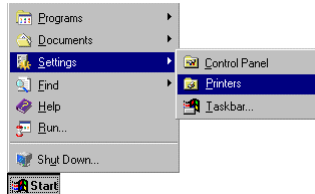
## PRINTER DRIVER INSTALLATION

### Windows 95, Windows 98 and Windows ME

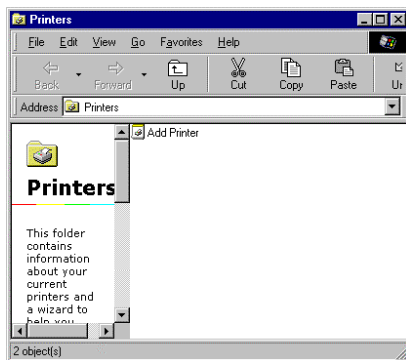
Start the computer and wait until the operating system is ready.

Click the  button.

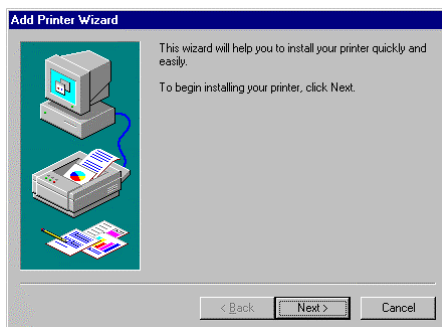
Place the cursor first on **Settings** and then on **Printers** (see illustration below).



The following window appears:



Double click **Add Printer** and the first dialog of the **Add Printer Wizard** appears.



Click the **Next** button and the next dialog of the wizard appears.



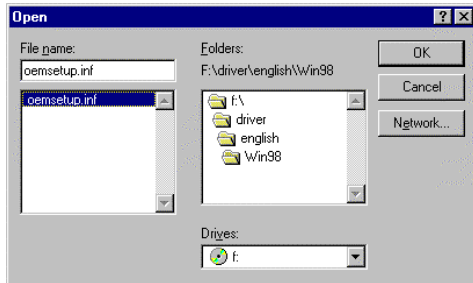
Select either **Local printer** or **Network printer** and confirm your selection with **Next**.

Insert your installation CD and then click the **Disk** button.

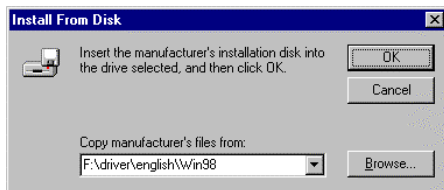
Click the **Browse** button and the **Open** dialog box appears.

Select from the **Drives** field the drive which you are using.

Double click **driver** and then select one of the available languages.  
At the moment you can either chose **german** or **english**.  
Depending on your operating system select **win95**, **win98** or **winme**.  
The **Open** dialog box should appear as illustrated below.



Confirm the selection with **OK** and the following window appears.



Click again the **OK** button and select the desired printer from the list.  
Confirm the selection with **Next** and the next page of the wizard appears.



Select from the list of **Available ports** the one which you desire.  
Confirm the selection with **Next** and the next page of the wizard appears.



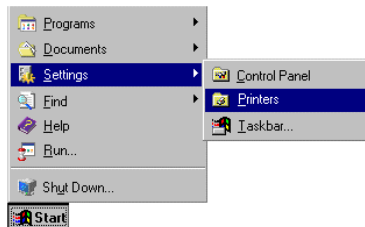
Click the **Printer name** field to enter an other name as the already existing.  
Confirm with **Finish** and the data is copied from the installation CD into the corresponding directory.  
After this procedure the printer is add to the list of **Available printers** and the installation process is finished.

## Windows NT

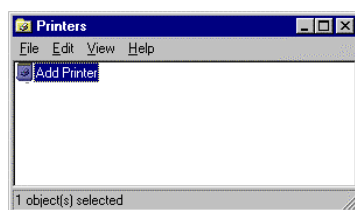
Start your computer and wait until the operating system is ready.

Click the  **Start** button.

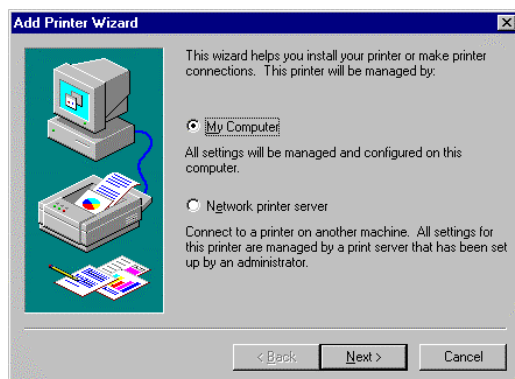
Place the cursor first on **Settings** and then on **Printers** (see illustration below).



The following window appears:

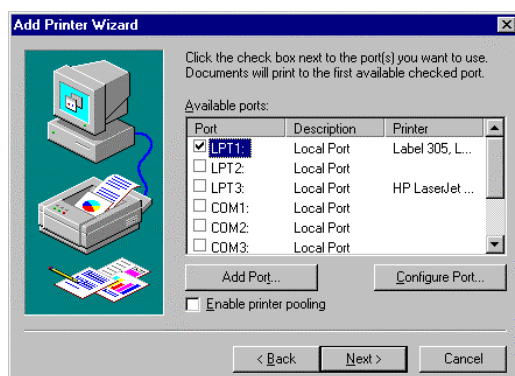


Double click **Add Printer** and the first dialog of the **Add Printer Wizard** appears.



Select if the printer you want to install is a local printer (**My Computer**) or a network printer (**Network printer service**).

Confirm your selection with **Next** and the next page of the wizard appears



Select from the list of **Available ports** the one which you desire and confirm the selection with **Next**.

Insert the installation CD and click the **Disk** button.

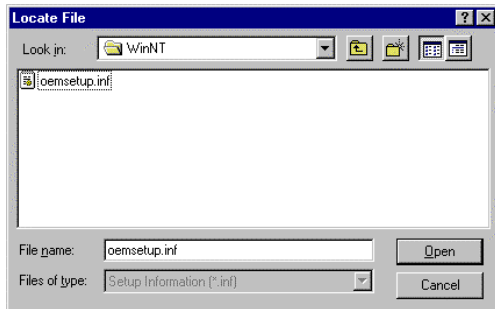
Click the **Browse** button and the **Locate File** dialog box appears.

Select from the **Drives** field the drive which you are using.

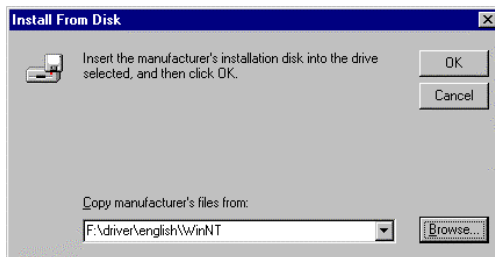
Double click **driver** and then select one of the available languages.

At the moment you can either chose **german** or **english**.

Select WinNT and the Locate File dialog should appear as illustrated below

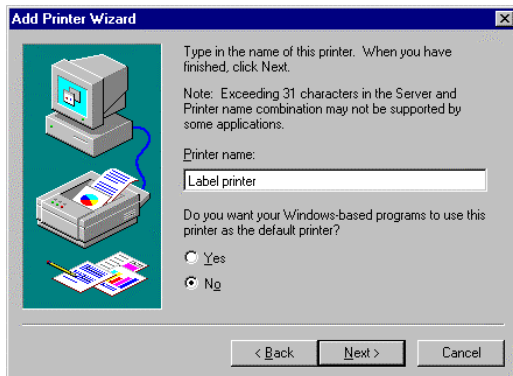


Double click the **oemsetup.inf** file and the following dialog appears.



Click again the **OK** button and select the desired printer from the list.

Confirm the selection with **Next** and the next page of the wizard appears.



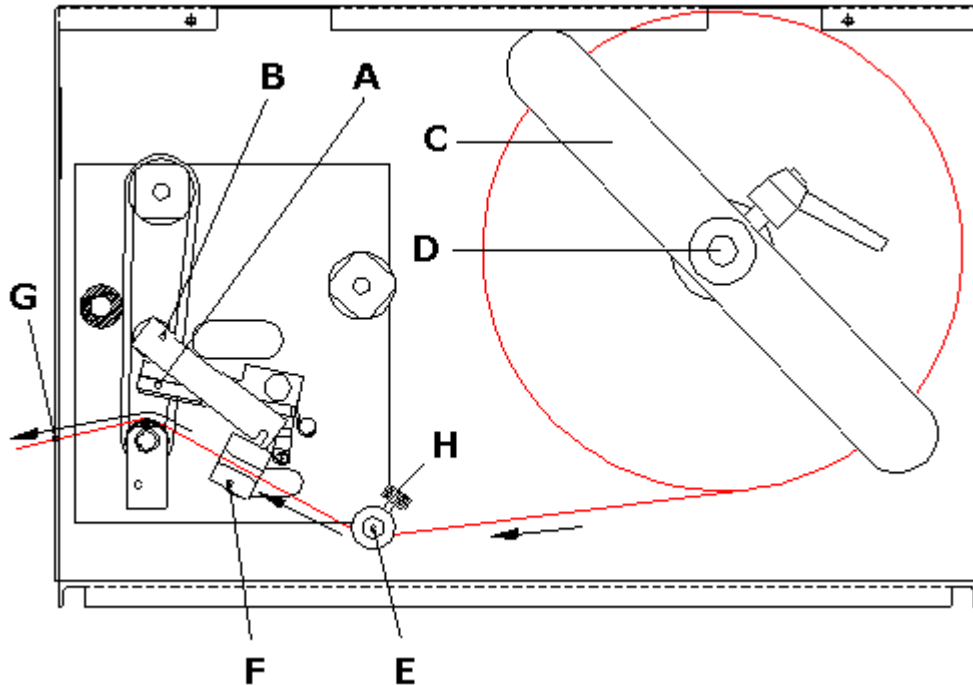
Click the **Printer name** field to enter an other name as the already existing.

Confirm with **Finish** and the data is copied from the installation CD into the corresponding directory.

After this procedure the printer is add to the list of **Available printers** and the installation process is finished.

## LOADING OF PRINT MATERIAL

### Loading of labels in standard mode



Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Remove the outside label mounting plate (C).

Load the label roll (G) with inner winding onto the unwinding roll (D) and attach again the label mounting plate (C).

Lead the label material (G) below the label guiding (E) and take care that the material runs through the photocell (F).

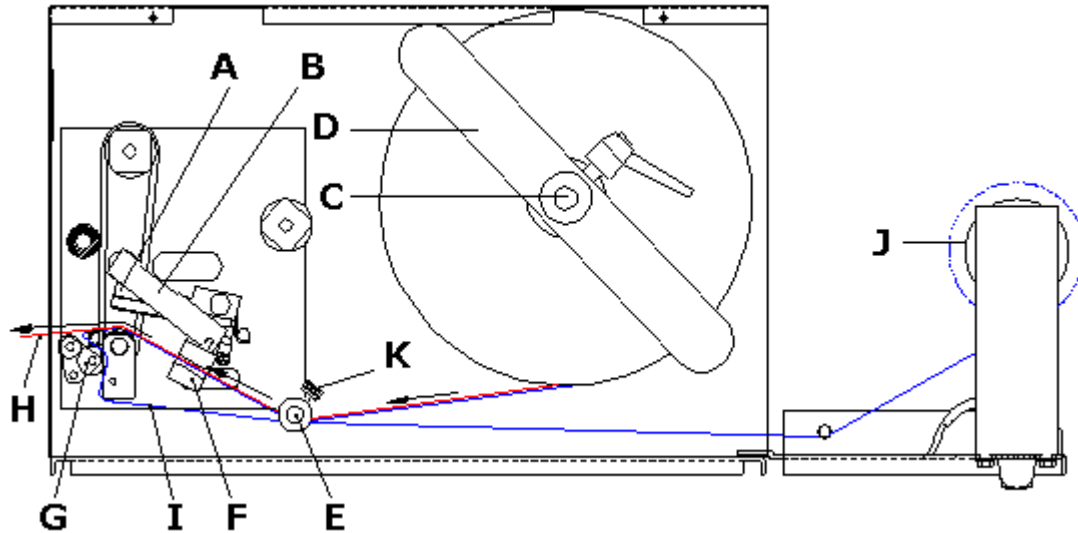
To move the printhead (A) down, turn the lever (B) in clockwise direction until it locks.

Adjust the adjusting rings (H) of the label guiding to the width of material.

Close the printer cover.

## Loading of labels in rewinding mode

Rewinder behind



Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Remove the outside label mounting plate (C).

Load the label roll with inner winding onto the unwinding roll (D) and attach again the label mounting plate (C).

Lead the label material (H) below the label guiding (E) and take care that the material runs through the photocell (F).

Lead the supporting paper (I) between pressure roll and dispenser whip (G) to the rear.

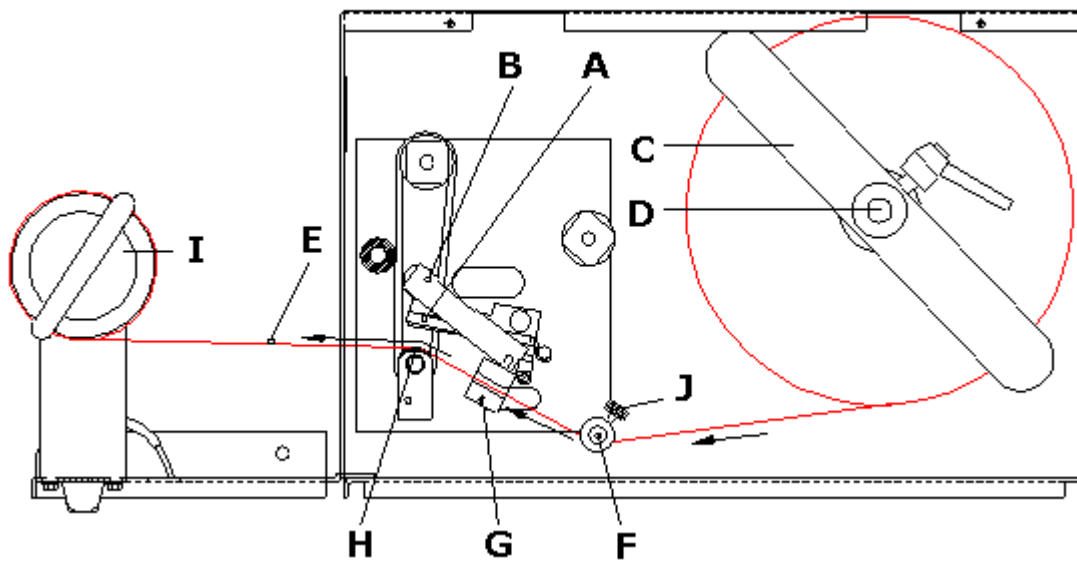
Clamp the supporting paper (I) with the designated handle (H) at the rewinding roll (J).

To move the printhead (A) down, turn the lever (B) in clockwise direction until it locks.

Adjust the adjusting rings (K) of the label guiding to the width of material.

Close the printer cover.

## Rewinder in front



Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Remove the outside label mounting plate (C).

Load the label roll with inner winding onto the unwinding roll (D) and attach again the label mounting plate (C).

Lead the label material (E) below the label guiding (F) and take care that the material runs through the photocell (G).

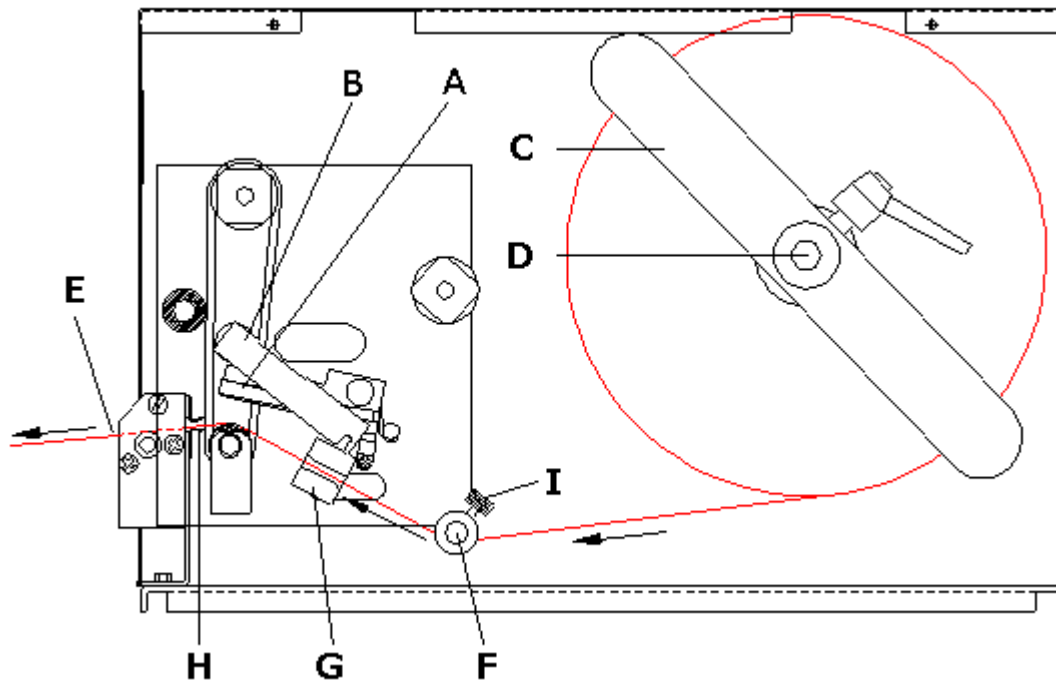
Lead the supporting paper over the pressure roll (H) and clamp it with the designated handle at the rewinding roll (J).

To move the printhead (A) down, turn the lever (B) in clockwise direction until it locks.

Adjust the adjusting rings (J) of the label guiding to the width of material.

Close the printer cover.

## Loading of labels in cutter mode



Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Remove the outside label mounting plate (C).

Load the label roll with inner winding onto the unwinding roll (D) and attach again the label mounting plate (C).

Lead the label material (E) below the label guiding (F) and the printhead (A) and take care that the labels run through the photocell (G).

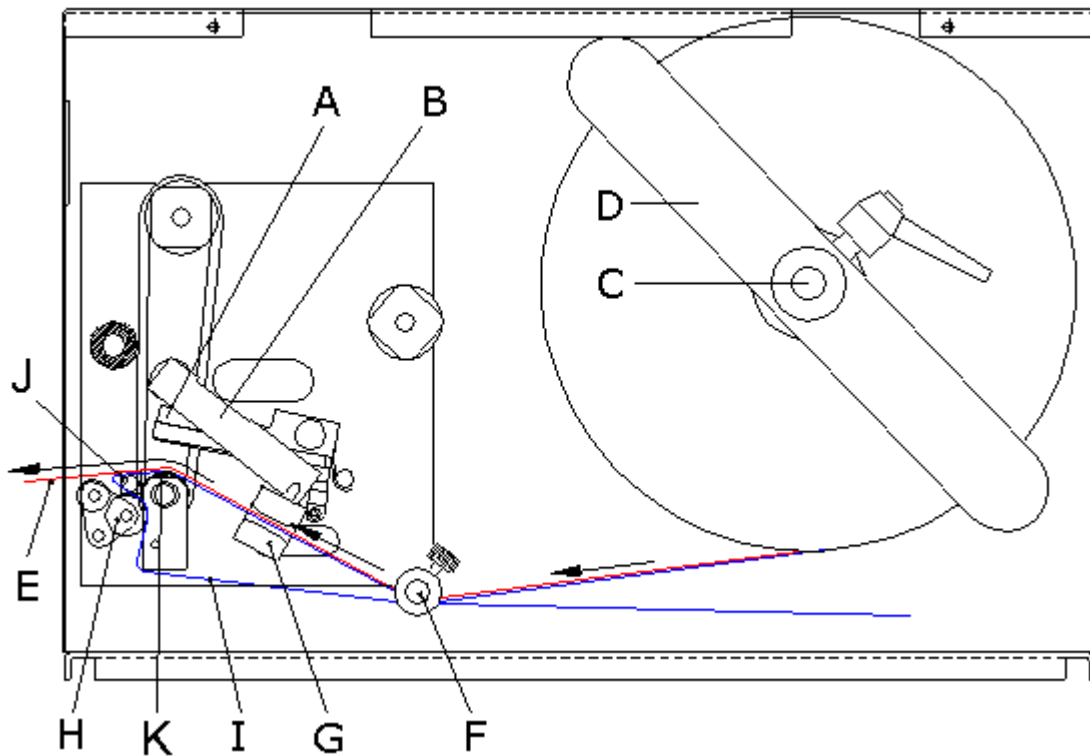
Lead the label material between inserting angle (H) and cutter ledge.

To move the printhead (A) down, turn the lever (B) in clockwise direction until it locks.

Adjust the adjusting rings (I) of the label guiding to the width of material.

Close the printer cover.

## Loading of labels in peel-off mode



Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Remove the outside label mounting plate (C).

Load the label roll with inner winding onto the unwinding roll (D) and attach again the label mounting plate (C).

Lead the label material (E) below the label guiding (F) and printhead (A) and take care that the labels run through the photocell (G).

Lift the whip (H) to the bottom.

Strip some labels (E) from the supporting paper.

Lead the supporting paper (I) over the whip (J), then the transport roll (K) and the plastic roll (K).

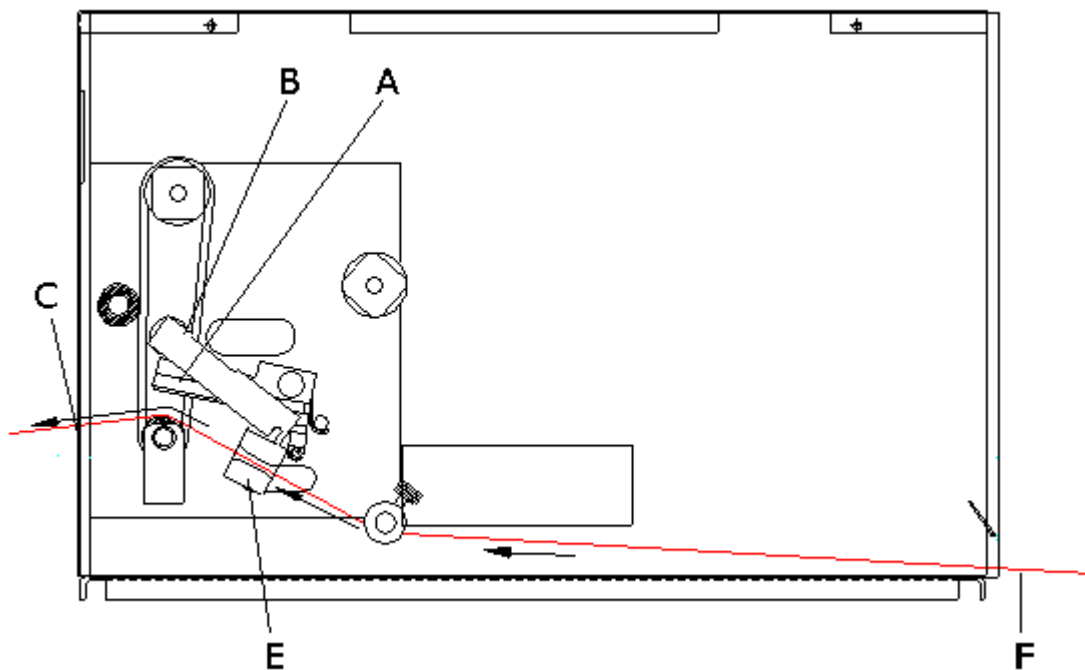
Press again the whip (H) to the top.

Lead the supporting paper (I) to the outside of printer. In case of an existing rewinding unit clamp it with the designated handle at the rewinding roll.

Close the printer cover.

**We recommend a minimum label height of 15 mm.**

## Loading of fan-fold material



Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Load the fan-fold material from the back in the corresponding guiding (F).

Lead the fan-fold material (C) through the photocell (E).

To move the printhead (A) down, turn the lever (B) into clockwise direction until it locks.

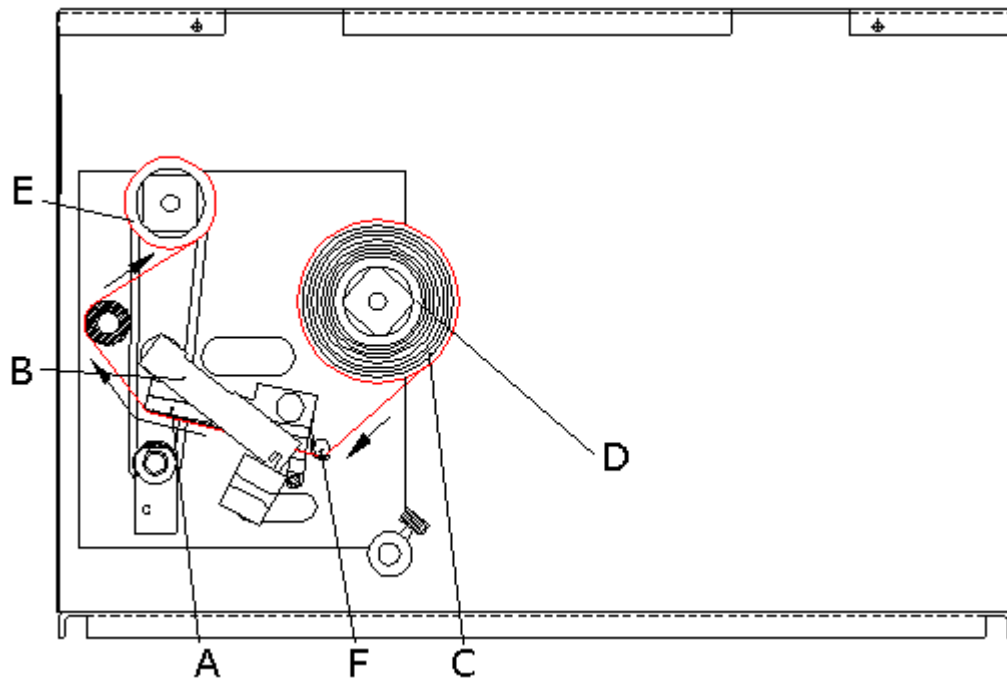
Close the printer cover.

Adjust the adjusting rings of the label guiding to the width of material.

Close the printer cover.

## Loading of transfer ribbon

**Note:** For the thermal transfer printing method it is necessary to load a ribbon, otherwise when using the printer in direct thermal print it is not necessary to load a ribbon. The ribbons used in the printer have to be at least the same width as the print media. In case the ribbon is narrower than the print media, the printhead is partly unprotected and this could lead to early wear and tear.



**Note:** Before loading a new transfer ribbon roll, we recommend to clean the printhead with printhead and roll cleaner (97.20.002).

Open the printer cover.

Open printhead (A) by turning the lever (B) against clockwise direction.

Load the transfer ribbon roll with outer winding to the unwinding roll (D).

**Make sure that you push the roll as far at it goes.**

Place an empty ribbon roll on the rewinding roll (E).

Lead the transfer ribbon below the printhead (A).

Fix the ribbon with an adhesive tape in rotating direction at the rewinding roll (E).

To check the perfect run of the transfer ribbon, turn the rewinding roll (E) several times against clockwise direction.

To move the printhead (A) down, turn the lever (B) in clockwise direction until it locks.


Close the printer cover.

## INITIAL OPERATION

Turn on the power switch at the rear of the printer.

Load label material and if required transfer ribbon.

Start measuring by pressing the keys  and  one after the other. Make sure that the printer is in online mode (green LED lights up).

With the  key it is possible to change from online mode (green LED lights up) to offline mode (green LED flashes).

**Note:** To guarantee a correct measuring at least two complete labels have to run through the photocell (not when using continuous labels).

## INSTALLATION

**Note:** Before initial operation the operating conditions described at the end of this operating manual have to be granted.

Please check the printer status immediately after the receipt, to be sure that nothing was damaged on the route of transportation.

As the delivery is customized, please compare the supplied accessories with your order.

**Note:** Keep the **original packaging** for possible later deliveries

Put the printer onto a suitable ground, avoiding exposure to bright sunlight.

Please avoid high humidity and dust environment.

Our printers are exclusive for printing on labels, continuous paper and similar materials.

Operate the printer only with the original cable with safety contact.

Connect the power line at the rear of the printer (see illustration below).

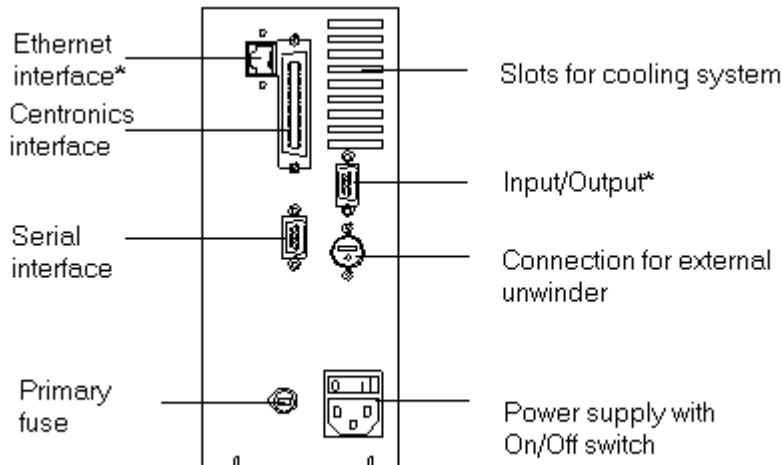
Connect the interface cable (RS 232) at the rear of the printer and lock it.

Make a connection to the computer at a free interface.

You can operate the printer via printer driver or via our label design software.

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

### Printer rear



\* Option

## TECHNICAL DATA

	Pica 104/8	Pica 108/12
<b>Print</b> max. material width min. label width min. label height print width max. print height  resolution print speed printhead	110 mm 15 mm 6 mm 104 mm 1500 mm (without Ethernet) 900 mm (with Ethernet) 200 dpi 50-80 mm/s Flat Type	110 mm 15 mm 6 mm 108 mm 650 mm (without Ethernet) 380 mm (with Ethernet) 300 dpi 100 mm/s Flat Type
<b>Build-in fonts</b> free scalable fonts  pixel fonts proportional fonts	-  6 6	Helvetica Bold and Roman, Swiss light, Baskerville, Brush Script 6 6
<b>Bar codes</b>  <b>2D Bar codes</b>	EAN 8, EAN 13, EAN 128, EAN ADD ON, CODABAR, Code 39, Code 39 extended, Code 93, Code 128, PZN Code, Code 2/5 interleaved, Pharmacode, UPC A, UPC E, Leitcode, Identcode	
		DataMatrix, MAXICODE, PDF417, CODABLOCK A
<b>Interfaces</b> serial parallel ethernet/LAN	RS232, 2400...38400 Baud Centronics (SPP) internal 10/100 Base-T (Option)	
<b>Transfer ribbon</b> core diameter max. length	25,4 mm / 1" 300 m	
<b>Dimensions (mm)</b> width x height x depth	230 x 230 x x350	
<b>Weight</b>	ca. 9 kg	
<b>Power requirements</b> Voltage Supply Standard  Power consumption	230 V / 50 Hz 115 V / 60 Hz (Option) max. 1,0 A / 230 V	
<b>Operating conditions</b> temperature relative humidity	5 - 45°C max. 20 - 80 %	

Technical modifications are subject to change

### Standard accessories

- CD ROM with Windows printer drivers for all operating systems as well as with the most important manuals for printer and software
- Multi tasking operating systems
- Tear off

### Options

- External rewinding unit
- Cutting unit (up to 110 mm material width)
- Dispensing unit (up to 110 mm material width)
- Input/Output

## TEAR-OFF

In case the printer is not equipped with a cutter nor with a dispenser, then it has as default an integrated tear-off edge.

After a print order you can lead the labels together with the supporting paper over the tear-off edge to tear them off.

Standard labels are suitable when using the tear-off edge. Continuous labels are only limited to use as the label adhesive can lead to contamination of the teething.

### Using tear-off

Unscrew the cover.

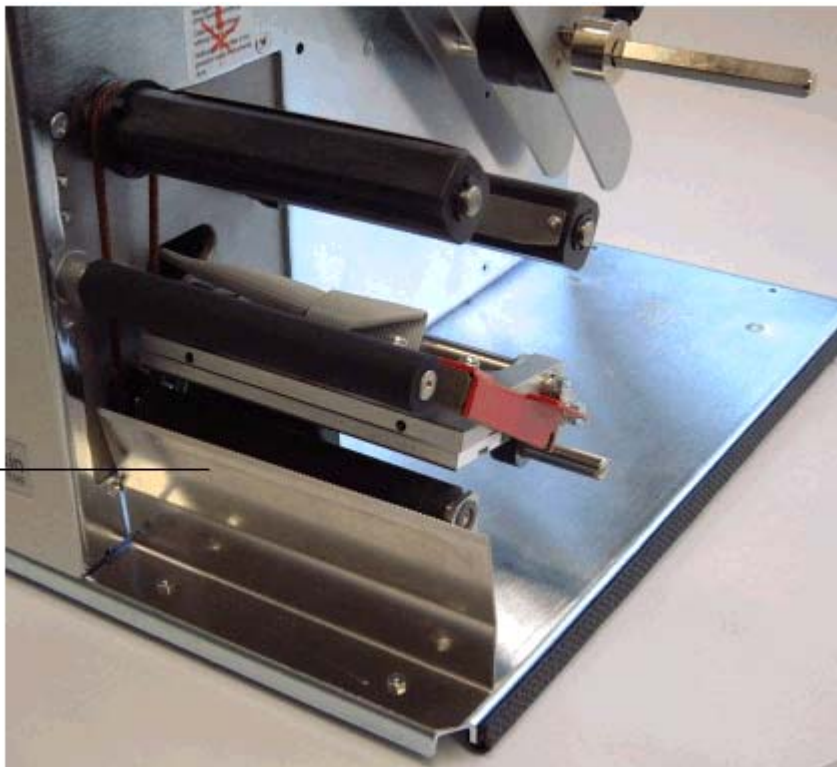
Turn the cover at 180°.

Screw on the cover again.

**Attention:** At the polished teething exists danger of injury.

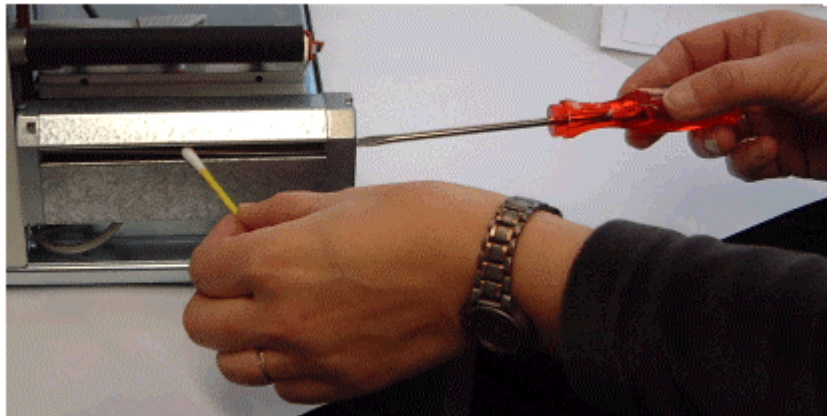
To make sure that the labels after the print are positioned with the gap at the teething it is necessary to set in the corresponding software the y-offset for the tear-off to approx. 17 mm.

Tear off



## CLEANING OF CUTTER

**Attention:** Unplug the machine!  
Danger of injury while working at the cutter!



Use a cotton stick (or similar) with special label remover (here available) and clean the cutter blade by leading the stick from the left to the right side.

Repeat this procedure as long as the complete label material is removed.

Because of the fact that the cutter consists of two blades it is necessary to clean also the second blade. Please follow the following steps:











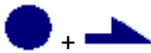
Lead the screw driver (wide 3 mm) into the screw slit and turn it by 180° until you can see the second cutter.

Repeat the cleaning procedure.

## OPERATING AND DISPLAY ELEMENTS

### LED signals of the printer

Green LED lights up	Printer is in online mode
Green LED flashes	Printer is in offline mode
Red LED lights up	Error signal
Red LED flashes	Stopped print order

Key	Printer status	Function
	Online and Offline Mode	Change from Online to Offline Mode
	Online Mode	Stop res. continue a print order
	Offline Mode	Label feed
	Offline Mode	Single cut (pressing long the key)
	Error	Print of error code
	Offline Mode	Test print (pressing short the key)
	Offline Mode	Status print (pressing long the key)
	Offline Mode	Error confirmation
	Offline Mode	Stop print order
	Online Mode	Determine the label values (keep the keys pressed one after the other)
	Online Mode	Reset to default values (keep the keys pressed > 2 sec. one after the other)


## FUNCTIONS


### Print



Make sure before printing that the printer is in online mode.

Send the print order via serial or parallel interface.

After transmission of the corresponding data the label is printed automatically.


It is possible to discontinue and then again continue the print order by means of the  key.

In case of a stopped print order you can press the  key to print again the last printed label. This is significant in case an error is occurred during a print order and the order of labels (e.g. counter) is important.

Press the  key to cancel an already stopped print order and the  key to continue a stopped print order.


During a print order the printer is in online mode therefore it is possible to send data via interface at the same time.

### Status print

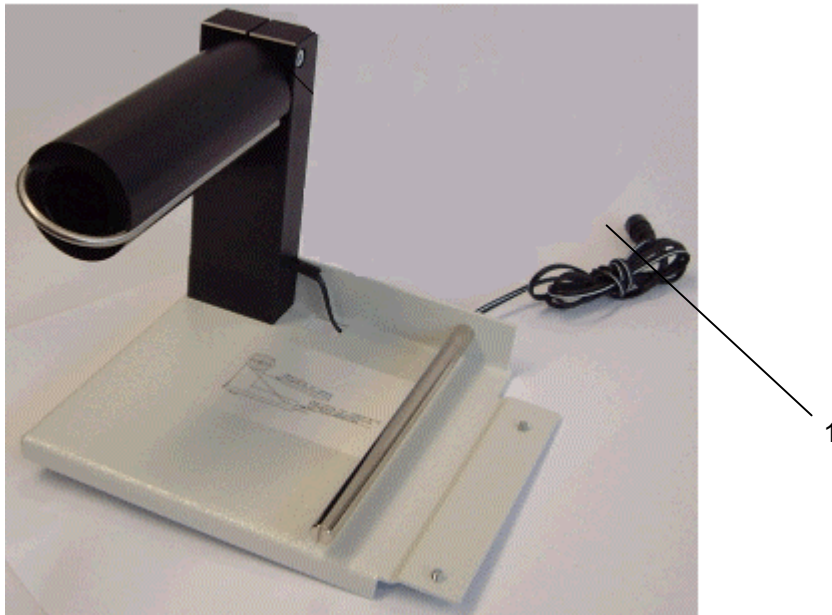
Press the  key (> 2 sec.) to print the current printer settings and a sample label. Make sure that the printer is in offline mode.

You can modify the printer settings via interface.

### Label feed

For a feed by one label, press the  key (< 2 sec.) but make sure that the printer is in offline mode.

## REWINDING UNIT PR28



It is possible to use the external rewinding unit PR28 for:

- rewinding the labels onto roll
- rewinding the supporting paper in dispensing mode

### **Rewind labels onto roll**

The rewinding unit is mounted at the front side of the printer without the enclosed return pulley.

### **Rewind supporting paper**

The rewinding unit PR28 is mounted at the back side of the printer with the enclosed return pulley.

### **Setting tension**

By modifying the tension with help from the central screw (1) it is possible to adapt the rewinding unit PR28 to different demands.

Please note that the modification of tension should result in minor print quality!

Loosen the screw:	Reduce tension
Screw the screw:	Increase tension

The reduce of tension results in a less tighten rewinding of supporting paper res. the label.

The increase of tension results in a more tighten rewinding of supporting paper res. the label.

## OPTIONS

### Dispenser operating modes

It is possible to select the desired operating mode either via the corresponding printer driver or the label design software.

The printer supports the following operating modes:

#### **Off**

It is printed without the labels are dispensed.

#### **I/O static:**

The input signal is analyzed, i.e. it is printed as long as the signal exists. The printer prints the number of prints which you entered at print start.

The set dispenser offset is not taken into consideration.

#### **I/O static continuous:**

For description of this operating mode please see **I/O static**.

Continuous means that it is printed as long as new data is transferred via interface.

The set dispenser offset is not taken into consideration.

#### **I/O dynamic:**

The external signal is analyzed dynamically, i.e. in case the printer is in 'waiting' mode then a single label is printed at each signal change. After the print the set dispenser offset is taken into consideration, i.e. this results to a backfeed.

#### **I/O dynamic continuous:**

For description of this operating mode please see **I/O dynamic**.

Continuous means that it is printed as long as new data is transferred via interface.

#### **Photocell:**

The printer is controlled via photocell. The printer prints automatically a label when the user tears off the label at the tear-off edge. The print order is finished at the nominal number of labels.

#### **Photocell continuous:**

For description of this operating mode please see **Photocell**.

Continuous means that it is printed as long as new data is transferred via interface.

## Cutter operating modes

It is possible to select the desired operating mode either via the corresponding printer driver or the label design software.

The printer supports the following operating modes:

### **Off**

It is printed without cutting the labels.

### **Without backfeed**

A cut is effected after each printed label.

The selection of this operating mode is only useful if the upper part of the label does not contain printable data.

### **With backfeed**

A cut is effected after each printed label.

### **Interval with final cut**

A cut is effected after a fixed number of labels which you have already selected at print start and additionally at the end of the print order.

### **Interval without final cut**


A cut is effected after a fixed number of labels which you have already selected at print start.

However, at the end of the print order no final cut is effected despite the set interval is at the end of the print order at the same time.

### **Final cut**

A cut is only effected at the end of the print order.

### **Single cut**

Press the  key (> 2 sec.) to release a single cut. Make sure that the printer is in offline mode.

## Input and Output

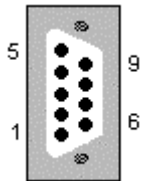
(9-term. DSUP pin)

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

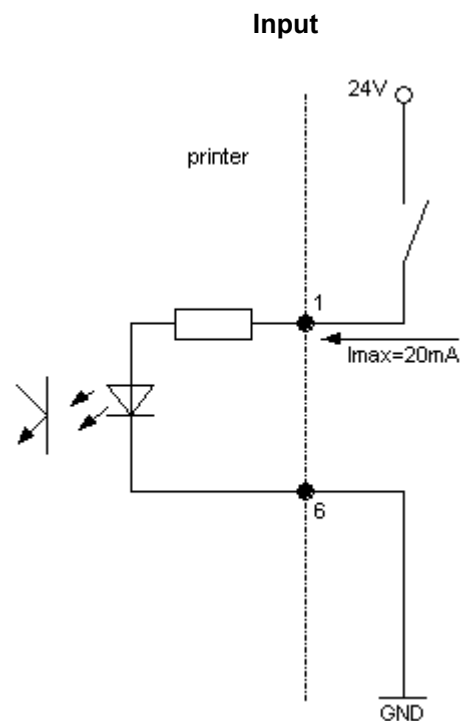
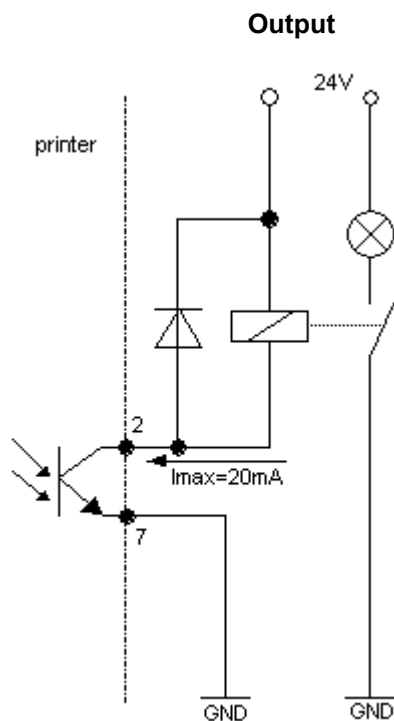
The signal output is lead via optical couplers.

In case a control output is active, then the corresponding output is to strain with a maximum current of 20mA.

Pin equipment of 9-term DSUP pin:




Pin	Signal description
 Pin 2 Pin 7	Error output
 Pin 1 Pin 6	Control input for single label dispensing






## ERROR CORRECTION

In case an error occurs, the printer stops, i.e. the print order is interrupted.

Press the  key to print the error code and at the same time the corresponding text.

Recover the error, and then press the  key to bring the printer again into operation.

An active print order is now stopped. Press the  key to print again the last printed label. This is significant in case an error is occurred during a print order and the order of labels (e.g. counter) is important.

Press the  key to continue a print order or the  key to cancel the print order.

## Error table

<b>Error No.</b>	<b>Possible Causes</b>	<b>Possible Error Rectification</b>
1	Line rises up completely or partly over the upper edge of label.	Move line down (increase Y value). Check rotation and font.
2	Line rises up completely or partly over the bottom edge of label.	Move line up (decrease Y value) Check rotation and font
3	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
4	Selected code is not available.	Check code type.
5	Selected position is not available.	Check position.
6	Selected font is not available.	Check font.
7	Selected font is not available.	Check font.
8	Text cannot be fit in the selected field.	Check field size.
9	While measuring no label was found. Set label length is too large.	Restart measuring process. Check label length.
10	During the print order the ribbon roll goes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon.  Check transfer ribbon photocell (Service Function).
11	Stop bit error.	Check stop bits. Check baudrate. Check cable (printer and PC).
12	Parity error.	Check parity. Check baud rate. Check cable (printer and PC).

<b>Error No.</b>	<b>Possible Causes</b>	<b>Possible Error Rectification</b>
13	Loss of data at serial interface (RS 232).	Check baud rate. Check cable (printer and PC).
14	Received line number is invalid at RS 232 and Centronics.	Check sent data. Check connection PC - printer.
15	Invalid length of received mask statement.	Check sent data. Check connection PC – printer.
16	Transferred mask statement invalid.	Check set data. Check connection PC – printer.
17	No end of data found.	Check set data. Check connection PC – printer.
18	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
19	Unknown transferred data record.	Check sent data. Check connection PC – printer.
20	For check digit control the entered res. received check digit is wrong.	Calculate check digit anew. Check code data.
21	Selected SC factor is invalid for EAN res. UPC.	Check SC factor.
22	Entered digits for EAN res. UPC are invalid < 12; > 13.	Check number of digits.
23	Selected check digit calculation is not available in the bar code.	Check calculation of check digit. Check bar code type.
24	Selected zoom factor is not available.	Check zoom factor.
25	Entered sign is not available.	Check offset value.

<b>Error No.</b>	<b>Possible Causes</b>	<b>Possible Error Rectification</b>
26	Entered offset value is invalid.	Check offset value.
27	Printhead temperature is too high. Defective printhead sensing device.	Decrease the print strength. Change the headprinter.
28	While cutting an error occurred – paper jam	Check label run. Check cutter run.
29	Entered data do not correspond to the characters allowed by the application identifier.	Check code data.
30	Selected application identifier is not available in EAN 128.	Check code data.
31	Continuous label mode is set. Printer has received command statement via interface, number of lines is < 2 Missing label length.	Deselect continuous mode or transfer a dummy line with Y coordinates = label length.
32	Real Time Clock function is selected but the battery is empty. Defective RTC.	Change or recharge battery. Change RTC component.
33	Interrupted connection CPU - Memory-Card. Defective Memory-Card interface.	Check connection CPU - Memory-Card interface. Check Memory-Card interface.
34	No print memory found.	Check memory assembly on CPU.
35	At start of a print order the printhead is up.	Move printhead down and start print order anew.
36	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
37	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
38	BCD error Invalid format for the calculation of Euro variable.	Check entered format.

<b>Error No.</b>	<b>Possible Causes</b>	<b>Possible Error Rectification</b>
39	Flash component error.	Run a software update. Change CPU.
40	Invalid length of the received command statement.	Check sent data. Check connection PC – printer.
41	No drive	Please contact your responsible distributor.
42	Drive error	Check the entered letter for drive.
43	Not formatted	Format your drive.
44	Invalid file name	Check the file name (possible used not allowed special characters).
45	Path too long	Select another path.
46	Drive write protected	Remove 'write protection'.
47	Directory not file	Check the file name.
48	File already open	Check if the file is already in use.
49	No file(s)	Check the file name.
51	No more memory	Check the remaining storage space. Change the card. Delete files which are no longer used.
52	Main directory full	Delete files which are no longer used from the main directory.
53	Drive full	Delete files which are no longer used from the card.
54	File/directory exists	Check the file name and rename it.
55	File too large	
57	Invalid graphic file	The selected file does not contain graphic data. Check the file name.
58	Directory not empty	First of all delete all files from the directory.

## OPERATING CONDITIONS

**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 after-sales service station.

Transport and storage of our printers exclusively in original packing.

Installing and initial operation of printers **only** when the operating conditions are **fulfilled**.

Initial operation, programming, operation, cleaning and service of our printers only after careful study of our manuals.

Operation only by specially trained persons.

**Note:** We recommend to perform trainings regularly.

These indications are also valid for someone else's equipment supplied by us.

Only use original spare and exchange parts.

### Conditions for the 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.

### 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 Standardization (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.

## Technical data of power supply

Power line voltage and power line frequency:	see type plate
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:	≤5%

### Anti-interference measures:

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

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.

## Stray radiation and immunity from disturbance

Stray radiation according to:

DIN EN 50081-2

\*DIN EN 55011 / 12.98

\*DIN EN 55022 7 4.98

Stray radiation according to EN 50082-2

Electromagnetic fields according to DIN EN 61000-4-3 / 8.97

Discharge of static electricity according to DIN EN 61000-4-2 / 3.96

Fast transient burst according to DIN EN 61000-4-4 / 3.96

Line connected disturbance, induced by high-frequent fields according to DIN EN 61000-4-4 / 9.97

Surge according to DIN EN 61000-4-5 / 9.96

Voltage interruption and voltage drop according to DIN EN 61000-4-11

### \* **Warning**

This is a machine of the class A. This machine can cause radio interference at living areas. In this case the operator can require to execute appropriate measures and arise for it.

## 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 and +80 °C.

It is only allowed to connect devices which fulfil the request 'Safety Extra Low Voltage' (SELV). These are generally devices which are checked corresponding to EN 60950.

## 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:                Interface V 24 (RS232C) - 15 mm (with shield)  
    Centronics - 3 mm (with shield)

## Air convection

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

## Limit values

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 the printers not allowed)

## 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 settings by test running and test printing. Herewith you avoid faulty results, reports and evaluation.

Only specially trained staff is 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 manual are different from the delivered model.

Please pay attention to the information about admissible print media and the notes to the printer maintenance, in order to avoid damages or premature wear.

We endeavoured to write this manual in an understandable form to give and you as much as possible information. If you have any queries or if you discover errors, please inform us to give us the possibility of improving our manual.



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