

User Manual

PP 80x

PSi Matrix GmbH **Freudenberg**

User Manual PP 80x

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.

A Publication of Psi Matrix GmbH

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Safety Regulations

The printer **PP 803**, **PP 806**, and the printer **PP 809** fulfill the safety regulations according to UL 1950 and VDE (IEC 950) and CNA/CSA C22.2 / No. 950 for computer systems.

The mains cable must be connected to a ground protected wall-socket. The selected voltage of the printer needs to fit to the local voltage.

The power plug must be easily accessible at any time so that it can be disconnected immediately in case of danger or for maintenance purposes. *Comme le câble de secteur sert de dipositif d'arrêt-urgence, sa connexion à l'imprimante doit être tout le temps accessible.*

Before installing the printer, check the surrounding conditions in which the printer will be placed (see next page, Operating Environment).

During a thunderstorm you should never attempt to connect or disconnect any data transfer cables.

The power supply should only be opened and checked by authorized personnel. Repairs and maintenance may only be attempted by authorized personnel as well. Repairs done inappropriately may cause damage and severe danger for the user.

There are warning symbols to draw the user's attention to possible injuries:

This symbol is visible when the cover has been opened. It indicates that the print head is extremely hot after long periods of printing.

Ce signal de danger se présente quand le cache derrière de l´imprimante soit etiré pour indiquer que la tête d´impression peut être extrèmement chaude après imprimer très longtemps..

This symbol is also located on the cover. It cautions against touching the blade.

Ce signal de danger se trouve sur le cache supérieur du massicot pour indiquer de ne pas toucher le couteau..

Electromagnetic Compatibility

We certify that the equipment at issue,

Type: Printer **PP 803**, **PP 806**, and Printer **PP 809**

Corresponds to the law regulations ruling electromagnetic compatibility of ap- pliances (89/336/ EWG) and, therefore, fulfills the requirements for conformity marking with the CE-sign.

For standard printer with serial and parallel interface (Ser/Par PM) please note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular in- stallation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from the circuit to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.

For printer with all other interface please note:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Shielded interface cables should be used with this unit to ensure compliance with Class B limits.

Changes and modifications not explicitly allowed by the equipment‘s manufacturer could void the user‘s authority to operate the equipment.

Changes et modifications pas expressément approuvés par le producteur peuvent dévaluer l‘autorité d‘opérer l‘équipement.

Operating Environment

Avoid installing the printer where it is exposed to moisture or heat (eg. direct sunlight).

Temperature:	+ 10 °C to + 35 °C (+50 °F to +95 °F)
Humidity:	20% to 80%
Humidity with Automatic Sheet Feeder (ASF):	30% to 70% (ASF only for printer **PP 806**)

1. Preface

About this Manual

This manual covers the printer in combination with an interface module (Perso- nality Module). The Personality Module (PM) is an integral part of the printer, and the type of PM used significantly influences the behavior or operation of the printer.
The structure of this manual is such that the operator is led step-by-step through the various procedures. It starts with the unpacking and setting-up, moves on to detailed instructions for operating the printer and ends with the mounting of options.
The manual is divided into the following chapters:

1. **Getting Started**
   This chapter covers the unpacking and setting-up of the printer and the installation of the PM (Personality Module) and ribbon cassette. By the end of this chapter the printer should be fully functional and tested in its primary form. It is not yet connected to the host computer system and no options are mounted.
2. **Operating the Printer**
   This chapter discusses in great detail the operation of the operator panel, all menu functions, and the general operation of the menu.
3. **Configuring the Printer**
   This chapter explains how to configure the printer so that it can communicate with the corresponding system environment. Then this chapter thoroughly describes the printer‘s operating controls. In the last part you will find tables with the possible values of the menu items.
4. **Description of the Individual Menu Items**
   In this chapter you will find detail explanations of individual menu items.
5. **Maintenance**
   This chapter shows how to clean the printer and how to replace the print head.
6. **Trouble Shooting and Diagnostics**
   Suggests how to identify and correct simple problems.
7. **Options**
   This is a brief description of all available options. Supplements enclosed in the packaging of options may be inserted here.
8. **Technical Data**
   All technical details or data about the printer can be found here.

Appendix

A. **Interface description**
   This chapter gives hints about possibilities to connect the printer to the various computer systems and explains particularities depending on the version of the operating system. Additionally, cable connection is illustrated.
B. **Print Samples of Resident Fonts**
C. **Character Set Table**
   All printer supported character sets are listed in this chapter.
D. **Control Codes**
   Quick reference for IBM Proprinter and IBM Proprinter AGM (4207, 4208 XL 24) Emulation.
E. **Control Codes**
   Quick reference for EPSOM LQ 2550, ESC/P2, and Barcodes Emulation.
F. **Control Codes**
   Quick reference for Barcode programming.

Conventions Used in this Guide
The following conventions are used:

Bold Headlines and important information.

Note: Contains special advice to facilitate handling.

Caution: Contains important information to prevent damage of the equipment.

[ENTER] Key functions are always depicted in brackets or you will find the symbol of the key e.g.  .

Abbreviations and Acronyms

ASF	**A**utomatic **S**heet **F**eeder Cassette for cut sheets and form sets
DRAFT	Draft Quality
EE	Eastern European
HSD	High Speed Draft
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LQ	Letter Quality
	User defined group (1 to 4) of stored parameter
NLQ	Near Letter Quality
PH	Print Head
PM	Interface (Personality Module)

Note: The following chapters describe the three printers: **PP 803 - PP 806 - PP 809**

The operation of both printers is mostly alike. In most illustrations, the printer **PP 806** is used.
In case there are differences in the handling you will find the note **PP 803**, **PP 806**, or **PP 809**.

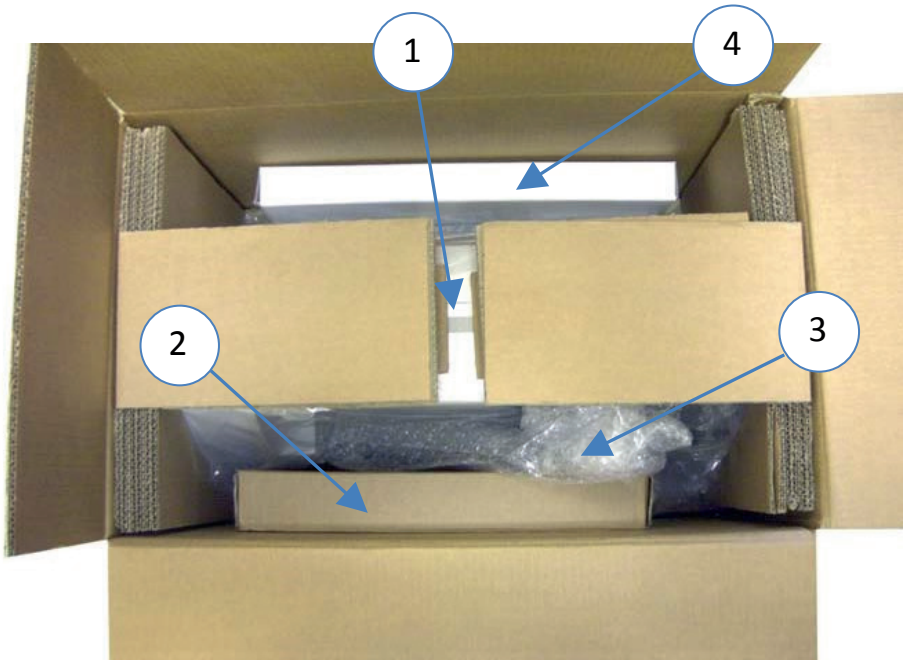
2. Getting started

2.1 Unpacking

Check each item against the check list detailed below. Contact your supplier immediately if any item is missing or damaged.

The package contains

- The printer (1)
- A box with attachments (2),
- Tractor cassette in bubble wrap (3)
- Ribbon cassette (4)

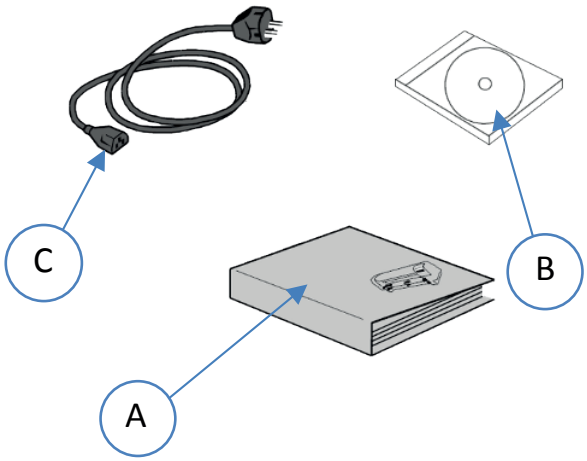


Note: Save all packing material and boxes for future transportation of the printer.

A separate box contains the interface, called „Personality Module“, or short „PM“).

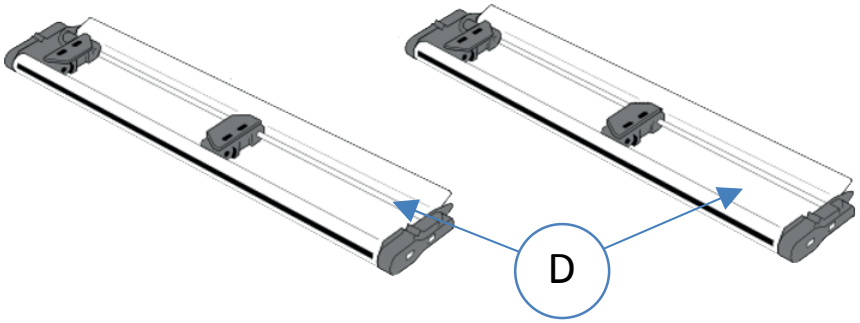
The box contain

- Quick reference guide (A)
- CD ROM (B)
- Power cord (C)



In the bubble foil you will find

- one tractor cassette (D) in case of printer **PP 803**
- two tractor cassettes (D) in case of printer **PP 806** or **PP 809**



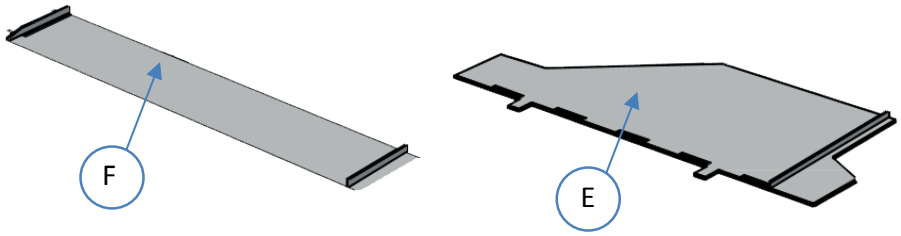
An additional package in bubble foil comes along with printer **PP 806** and **PP 809** which contains:

PP 806:

- Paper Insertion Guide (F)
- Manual Sheet Feeder (E)

PP 809:

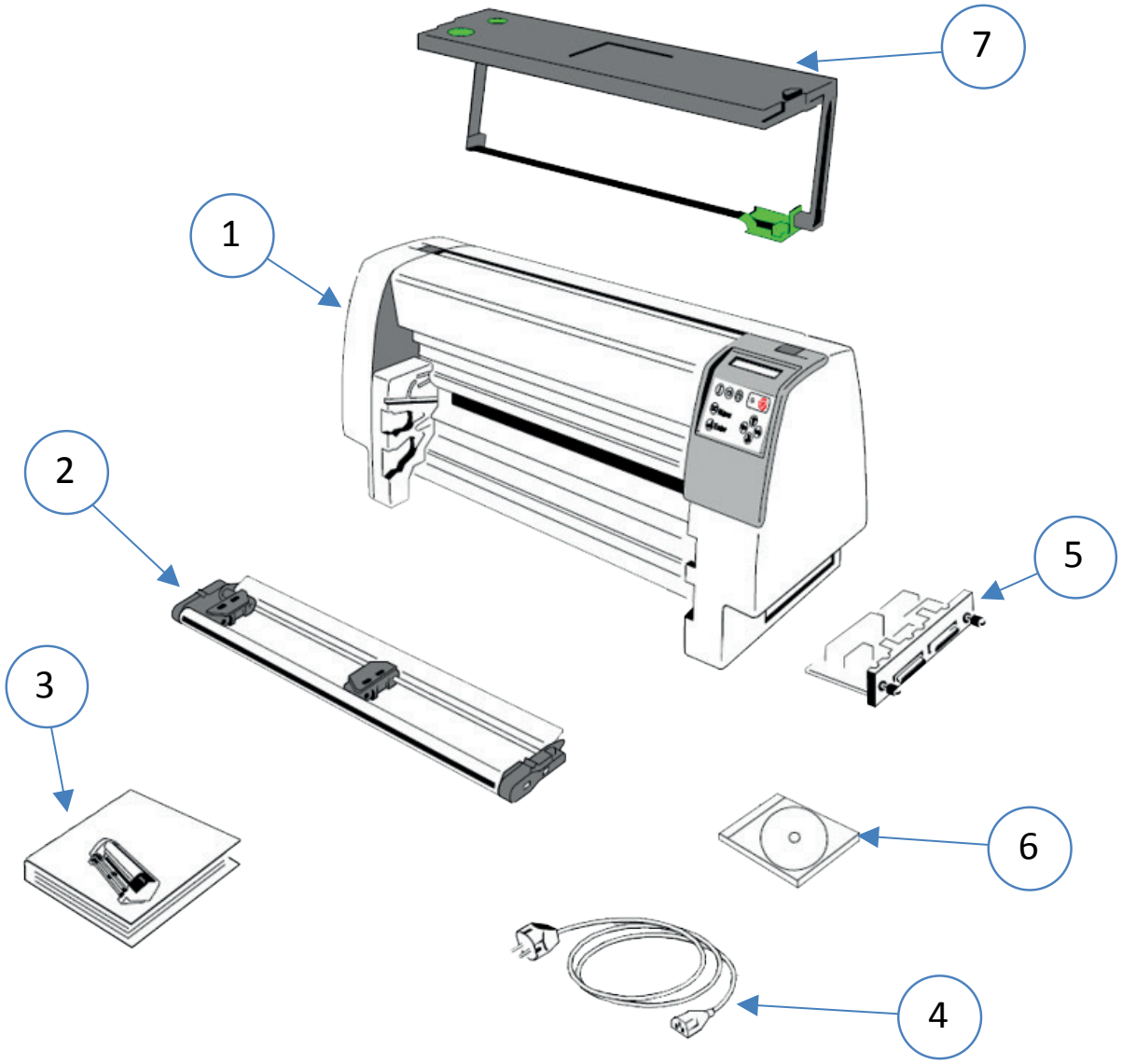
- Paper Insertion Guide (F)



2.1.1 Delievery Content of PP 803

- Printer PP 803 (1)
- Tractor cassette (2)
- Quick reference guide (3)
- Power cord (4)
- CD ROM (6)
- Ribbon cassette (7)

Note: Interface (PM) (5) must be ordered separatly.

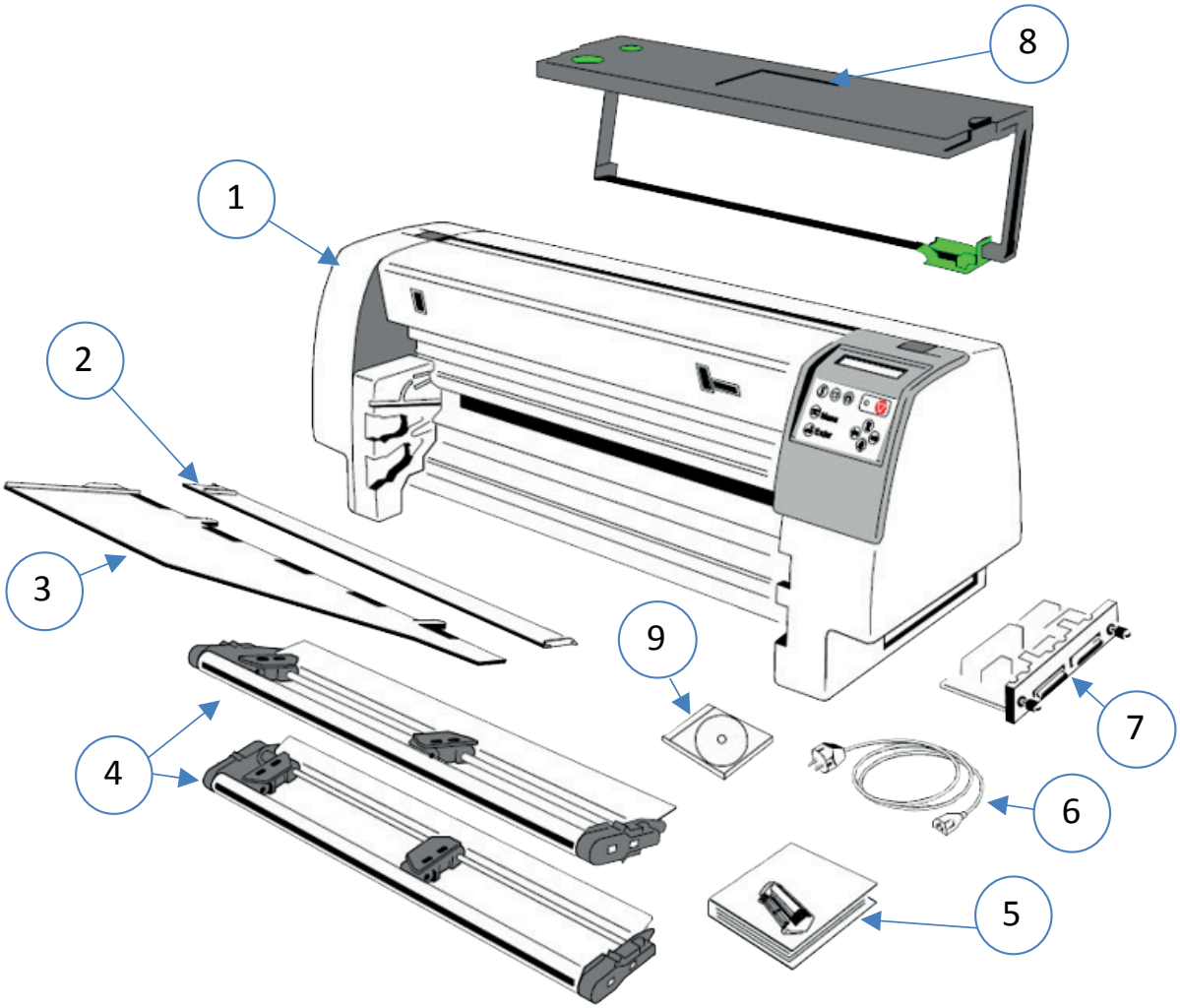


Pls. ckeck, if a part is missing inform your supplier.

2.1.2 Delievery Content of PP 806

- Printer PP 806 (1)
- Paper Insertion Guide (2)
- Manual Sheet Feeder (3)
- Two tractor cassettes (4)
- Quick reference guide (5)
- Power cord (6)
- Ribbon cassette (8)
- CD ROM (9)

Note: Interface (PM) (7) must be ordered separatly.

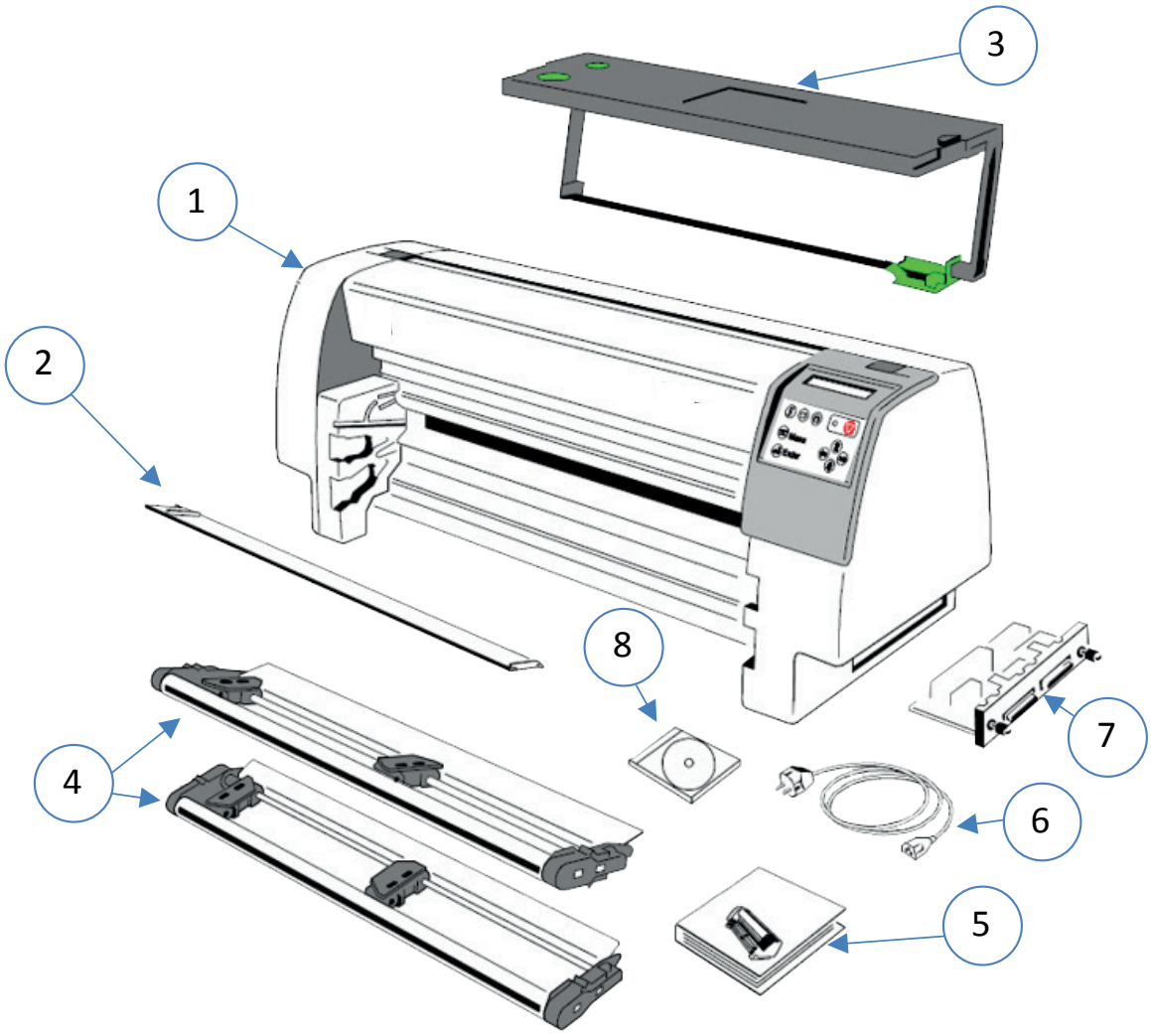


Pls. ckeck, if a part is missing inform your supplier.

2.1.3 Delievery Content of PP 809

- Printer PP 809 (1)
- Paper Insertion Guide (2)
- Two tractor cassettes (4)
- Ribbon cassette (3)
- Quick reference guide (5)
- Power cord (6)
- CD ROM (8)

Note: Interface (PM) (7) must be ordered separatly.



Pls. ckeck, if a part is missing inform your supplier.

2.2 Requirements to the location of the printer

Requirements to the location of the printer

Environmental Conditions

Install the printer in an area away from any heat source, air conditioner, or strong airflow. Avoid installing the printer where it is exposed to moisture or heat (eg. Direct Sun light). Avoid installing the printer in a dusty or humid environment.

Preconditions for Installation

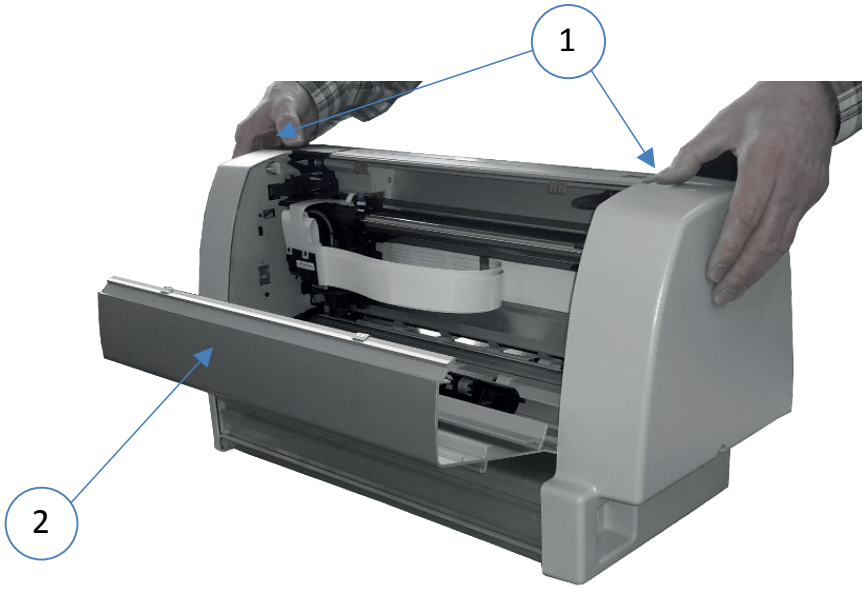
Place the printer on the stand or a table. When processing fanfold paper always place the printer with its front edge slightly off the edge of the table.

Power Requirements

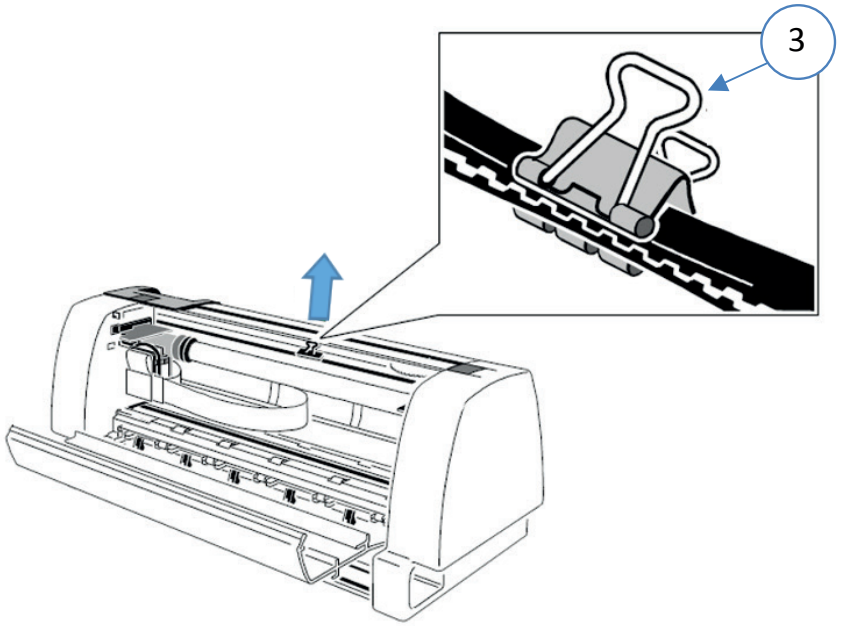
No special wiring is required. A typical office wall outlet is sufficient. Do not plug into the same wall outlet other equipment besides the printer such as coffee machines, copy machines, or air conditioners

2.3 Remove transport lock

Open the rear cover (2) by pressing the two locking buttons (1) and swivel the rear cover backwards



Remove the transport lock (3) for the print head carriage.. It is marked by a red paper.



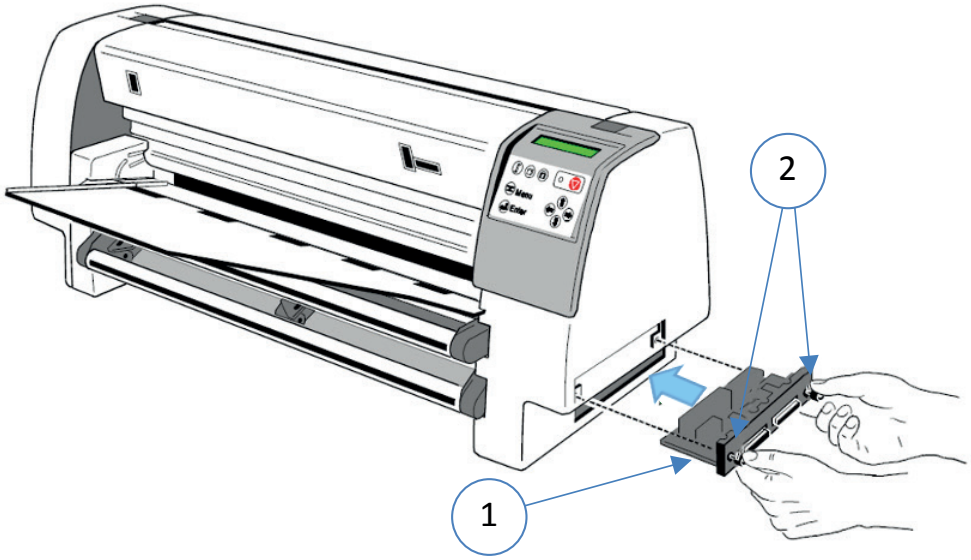
Re-packing Information
To ensure maximum protection when transporting the printer, always:

- Remove any installed paper handling option.
- Remove the mains cable.
- Remove the ribbon cassette.
- Reposition the transport lock.
- Pack the printer in its original packing material and ship in its original package.

2.4 Installation of the interface (PM)

The printer is only operational when an interface is installed, called a Personality Module (PM). The illustration below shows the standard PM with a serial and parallel interface.

Note: Never attempt to install or remove a PM while the printer is switched ON. To avoid damage due to electrostatic discharge, do not touch the pins or components of the PM.



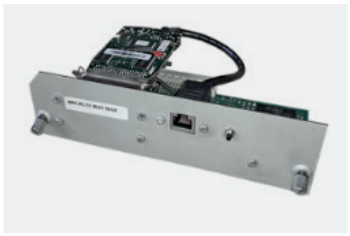
The PM does not belong to the standard sump of the printer. It must be ordered separately. PSi provides different variants.

PM Ethernet

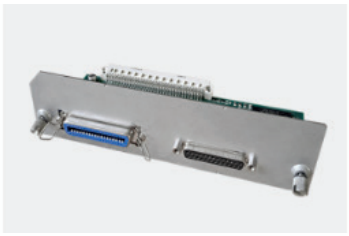
PM IGP Ethernet

PM IGP Parallel

PM IPDS Ethernet



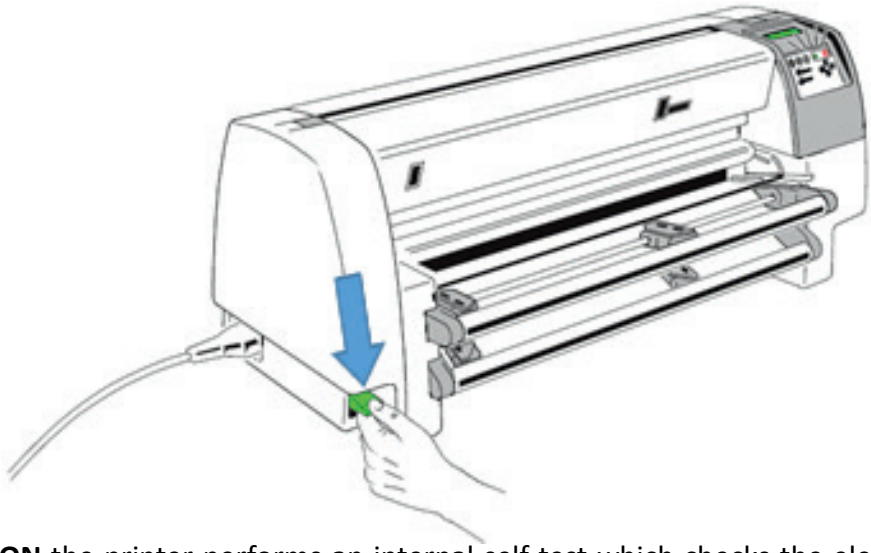
PM Seriell / Parallel



2.5 Mains connection and power on

Connect the printer to the mains using the power cord. First connect the cable to the power cord socket and then to the mains. Do not plug into the same wall outlet other equipment besides the printer such as coffee machines, copy machines, or air conditioners.
The power On/Off lever switches power supply of the printer ON or OFF.

Note: Press the lever **always** down. Since the power cord serves as a safety cut-off, its connection to the printer must be accessible any time.



When switched **ON** the printer performs an internal self-test which checks the electronics, the print head carriage movement, and the interface. Power ON is indicated by a green LED on the operator panel, the first panel message is **TEST...**.

If the message **RIBBON UNLOCKED - CHECK RIBBON ...** is shown, follow the steps in on page paragraph **Ribbon Installation**.

When the internal test has been completed successfully the display shows **READY 1 ELQ** or **LOCAL 1 ELQ** if data have already been transmitted.

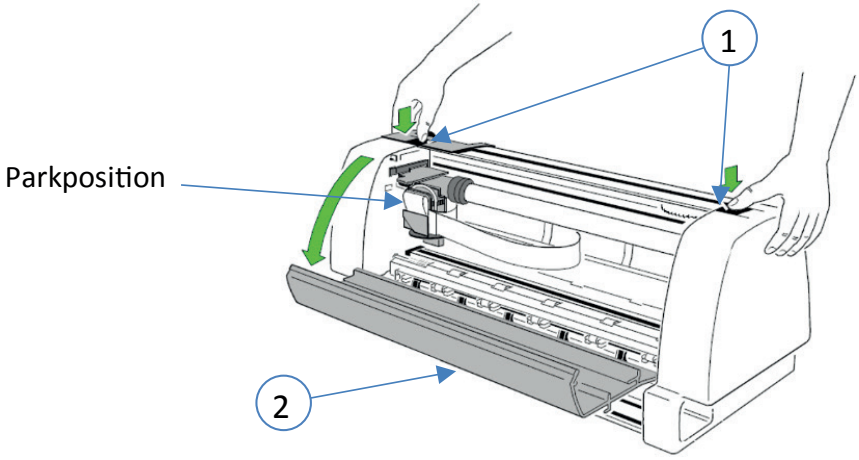
Note: If the display shows anything different please refer to chapter **7 Trouble- shooting and Diagnostics**.

2.6 Ribbon installation

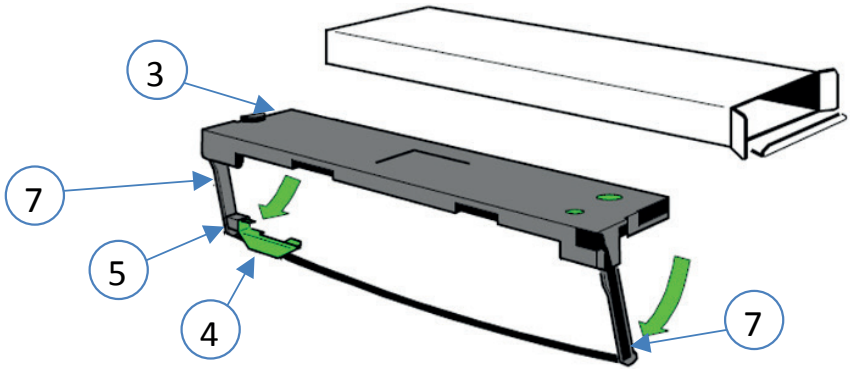
Note: It is recommended to use only original ribbon cassettes supplied by the printer manufacturer. Using other ribbons will void your warranty.

The following procedure describes how the ribbon cassette is installed into the printer for the very first time. Section 2.7 Replacing the Ribbon Cassette is applicable if the ribbon cassette is to be changed.

Note: The print head must always be in the park position.
Open the rear cover (2) of the printer by pressing simultaneously the two locking buttons (1) and swivel the rear cover backwards

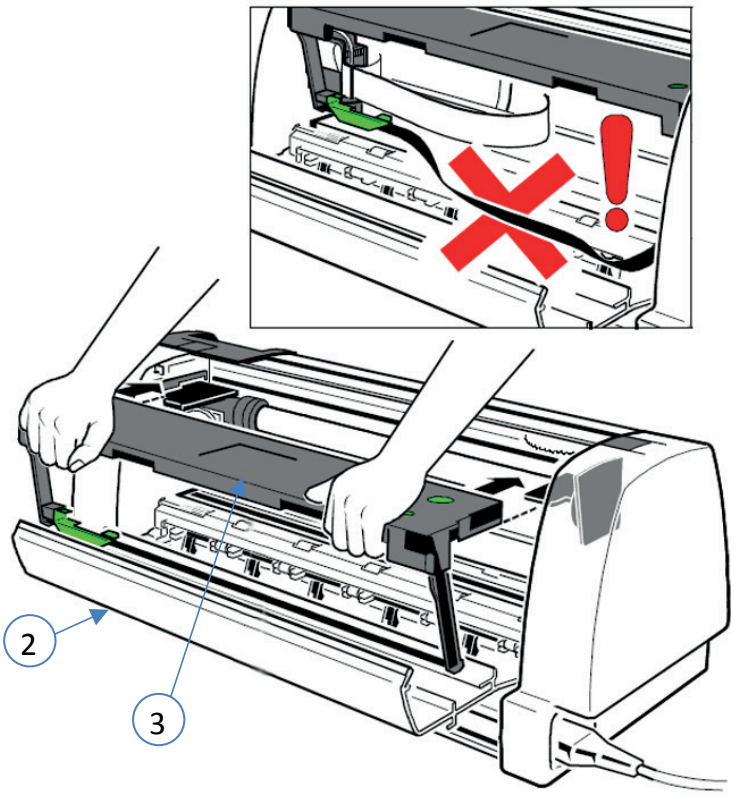


- Pull the right and left arm (7) of the ribbon cassette (3) to the bottom and move the ribbon feed guide (4) into the fixing device (5) at the side.

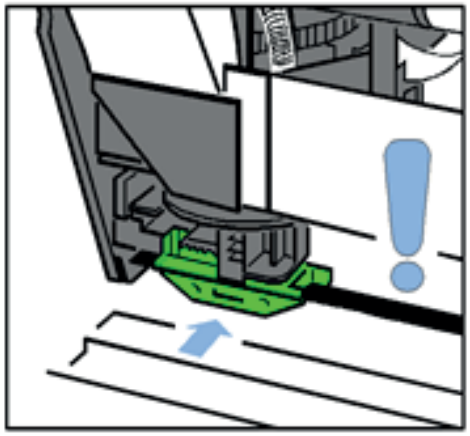


Note: The ribbon feed guide (4) has to slide into the fixing device (5). The ribbon shall not be tensed.

- Slide the ribbon cassette (3) with both hands into the printer.



Note: Make sure that the green ribbon guide slides under the printhead. If using a a cutting device give a help by hand.



- Close the rear cover (2). The printer locks automatically the ribbon and cover.

Replace Ribbon Cassette

Caution: The print head may be very hot immediately after printing!

To install the ribbon, the printer must be powered on.

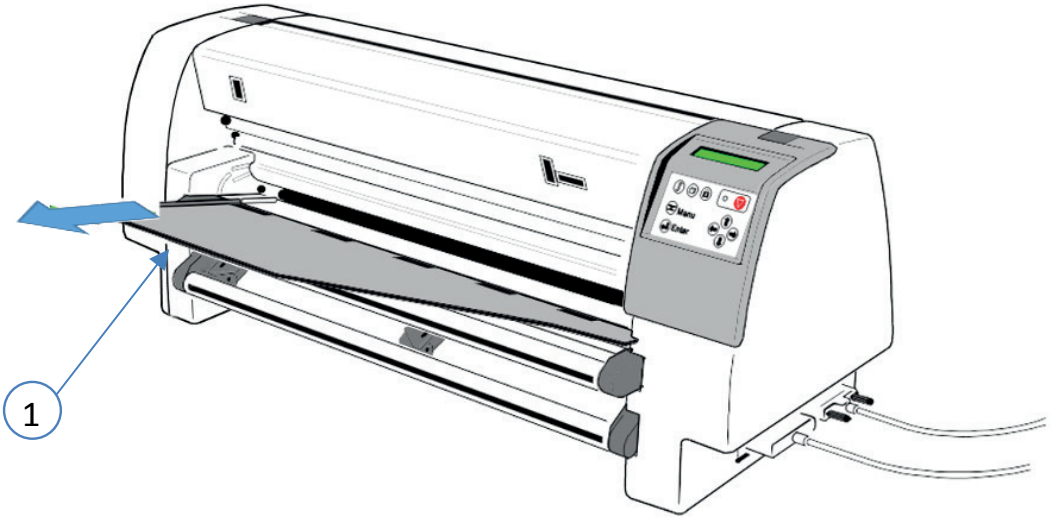
- Put the printer into the **Local Mode**. (Press).
- Open the rear cover (2) of the printer by pressing simultaneously the two looking buttons, see picture on page before.
- Swivel the rear cover backwards.
- Remove Ribbon Cassette.

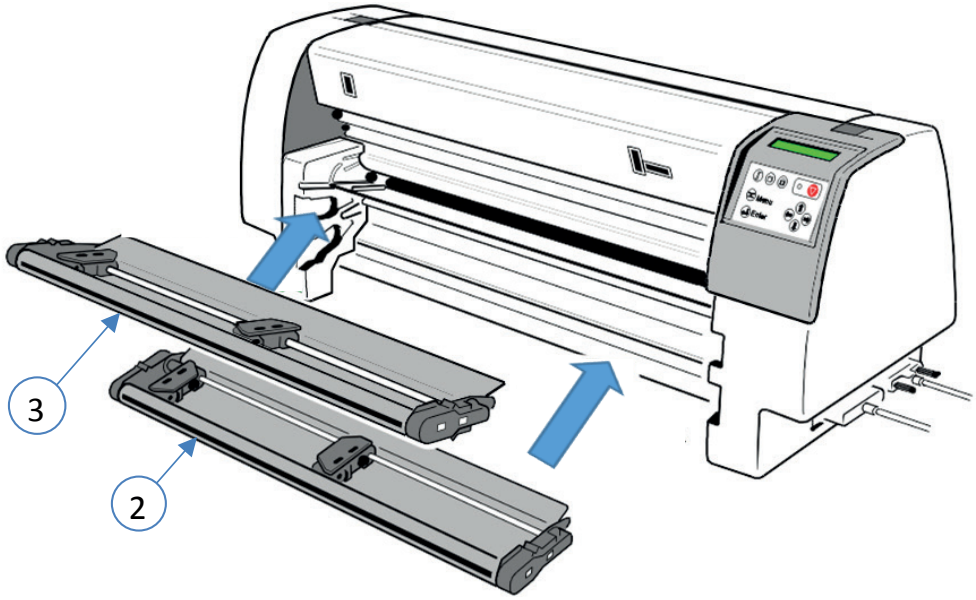
2.7 Insert paper

There are two or three possibilities for paper feeding:

- Fanfold paper with the two tractor cassette (a second tractor cassette is an option for printer PP 803).
- Single sheets through the manual paper path input of the PP 806 which is an optional device for printer PP 803.
- Only for printer PP 806 automatic sheet feeder cassette (ASF-Cassettes) are available as an option. For further information please refer to chapter 7.2 ASF Cassettes.
- Manual sheet feeder (1) must be removed on the PP 806 Insert a tractor cassette at the bottom (2) or at the top (3) or both.

Note: The second tractor cassette is an option on the PP 803.

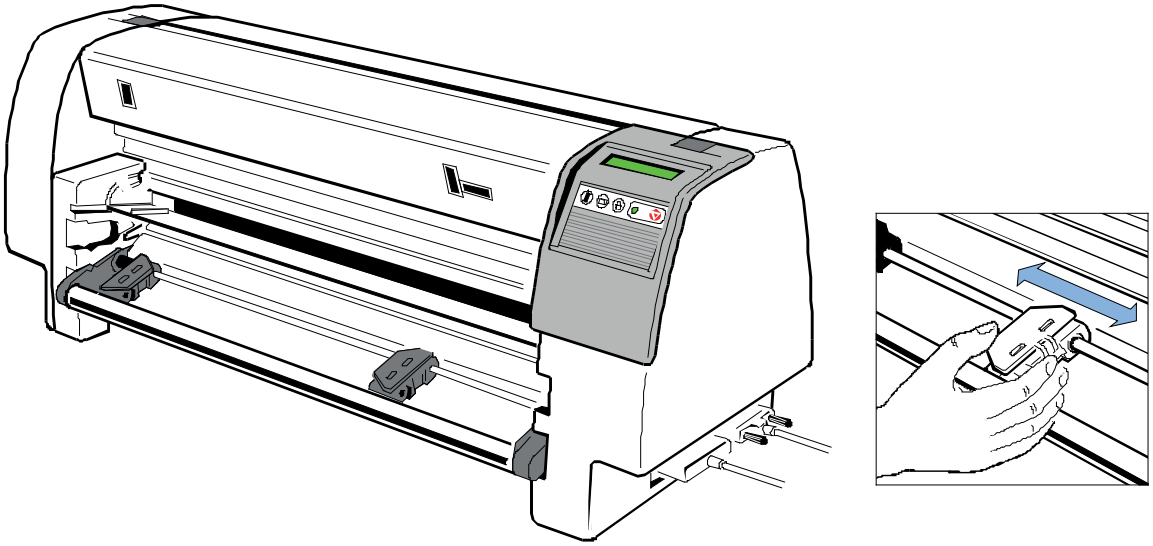




Step 1:

The paper width will be adjusted by the right tractor. The left tractor is fix. Adjust the right tractor as shown in the picture below roughly to the paper width.

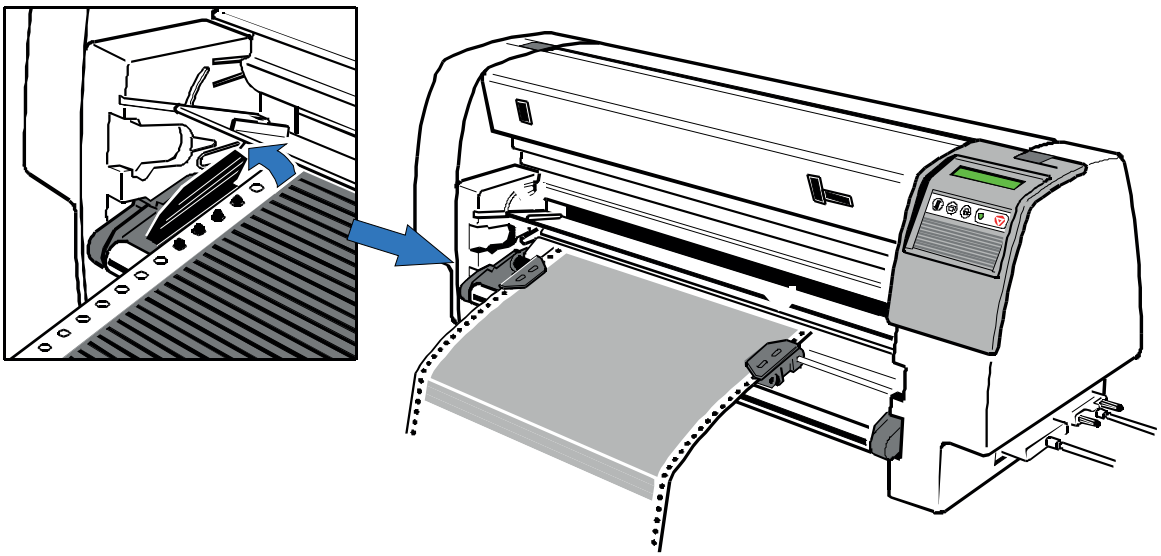
Note: Don´t move the tractor with open tractor cover (flap) because it may break off!



Sep 2:

Open the tractor covers and insert the paper preferably into the right tractor. Close the right tractor cover now and move the right tractor including the paper to the left. If the the tractor pins are in the centre of the transport holes close the left tractor cover.

Note: The paper must be straight but not too tighten!



Note: The left tractor is fix such that the left transport holes properly feed into the paper run sensor.

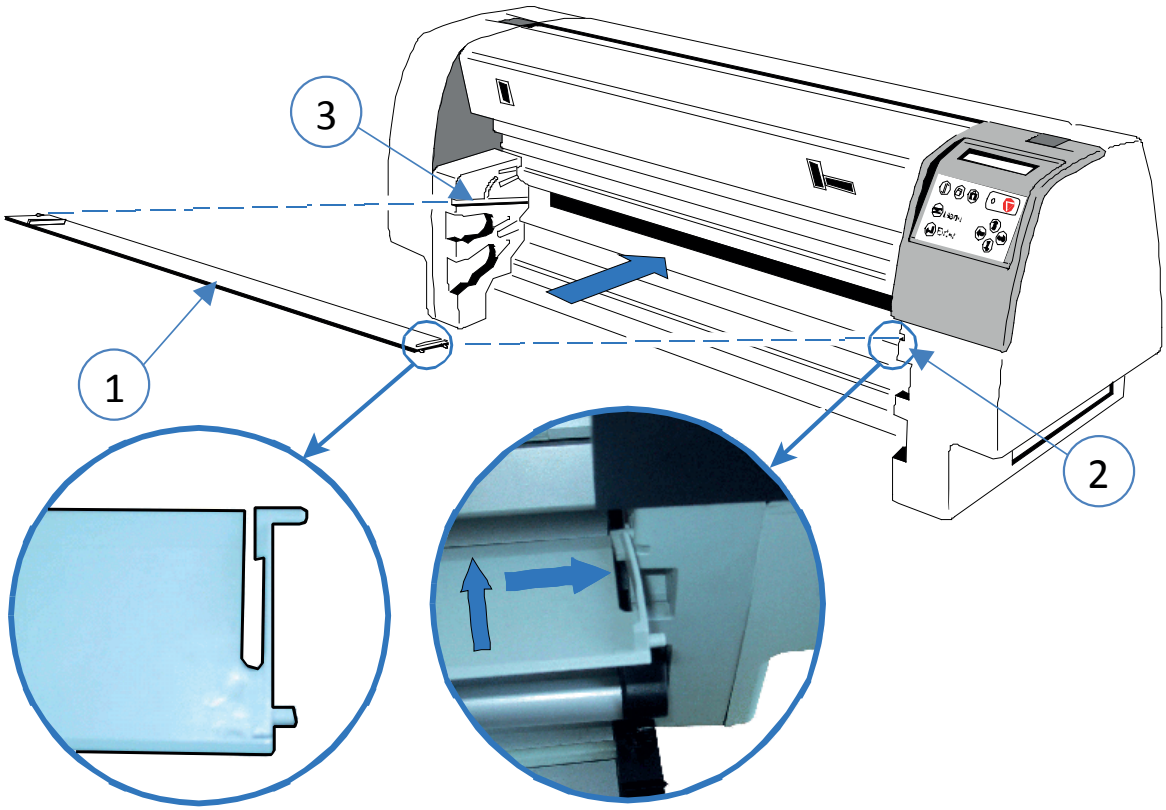
The print area can be shifted electronically with the menu item **PRINT POS. ADJ.** (see also menu structure and description of the individual menu items).

Step 3:

Only for **PP 806** and **PP 809**: insert the Paper Guide (1) into the right slot (2) and push it against the housing [1.]. Then insert the left side into the slot (3) and shift it into the printer [2.].

The standard setting of the paper source is **TRACTOR LOWER** . If the paper source must be changed follow the steps on the next page..

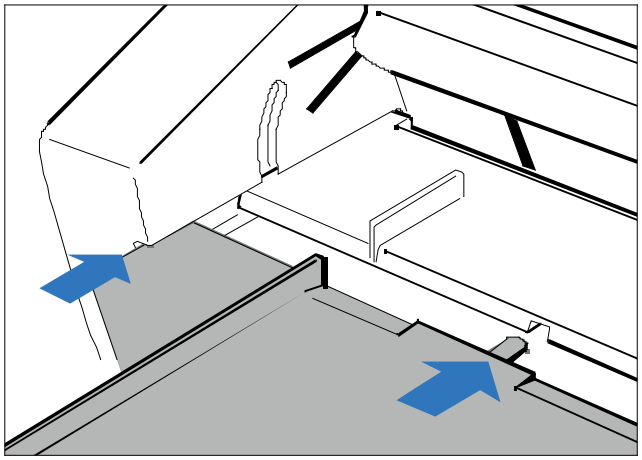
Note: The Paper Guide supports the paper feeding from the tractor into the transport rollers of the printer. Such an optimum line registration is achieved and prevent the paper from generating waves which let the form slide off the tractor.

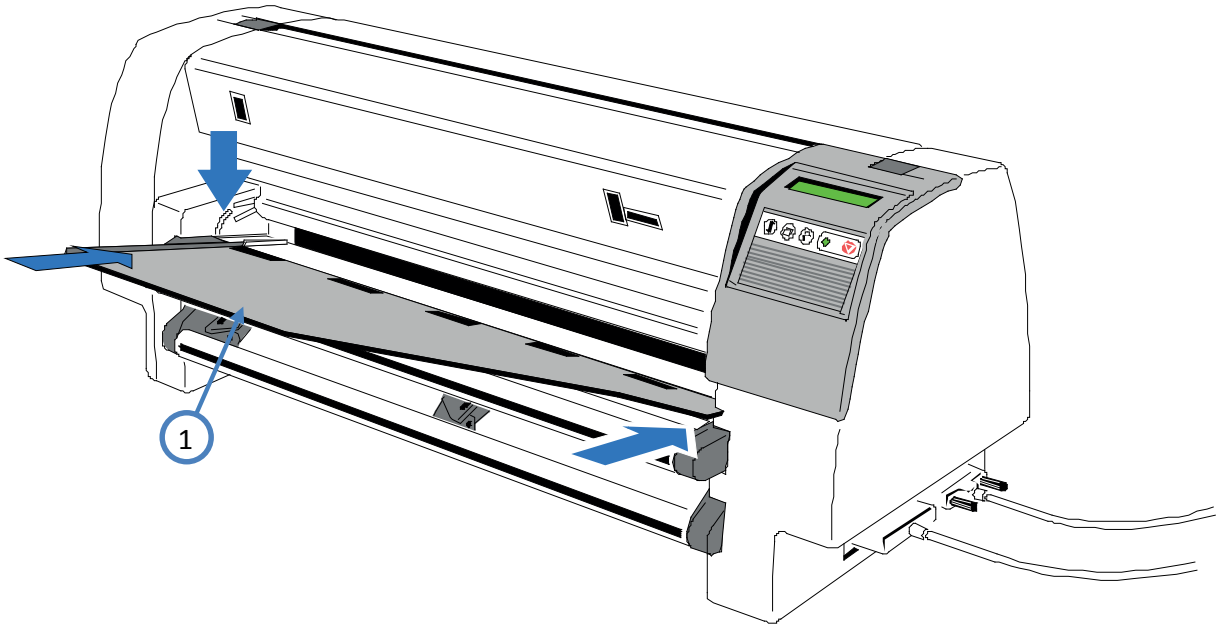


Insert the the manual sheet feeder for printer **PP 806** (see next page) and start for all printers the **Test Printout** (see paragraph **2.9 Test Print Out**)

2.8 Manual Sheet Feeder PP 806

Insert and connect the Manual Sheet Feeder (1) to the paper insertion guide





Select the paper source **MANUAL** using either the menu function or by means of the corresponding command in your application program, see chapter **2.9.1 Paper Source Selection**. Initiate a printout, see chapter **2.9 Test Print Out**.

2.9 Test-Print Out

There are four test printouts available.

PRINT MENU
Shows the current settings of all parameters and the contents of the macros
CONFIGURATION
Lists all available fonts and indicates the page counter value.
PRINT LETTER
Produces a standard letter (ECMA-132) which can be used for measuring the printer's throughput.
PRINT LINES
Shows a pattern of all printable characters. Use this to check the print quality as well as the top and left margin.

The following steps show which keys to use to start a test printout. The printer feeds paper from the defined paper source (default **TRACTOR LOWER**).

KEY SYMBOL	Meaning	DISPLAY	INFO
	[START/STOP]	STOP 1 ELQ	
	[MENU]	TESTS MODES ⇨	
	[RIGHT]	⇦ PRINT MENUE	or select another test expression with [DOWN] 
	[ENTER]	PRINT MENUE	
	[START/STOP]		starts printing
	[FORM FEED]	⇦ PRINT MENUE [TEAR OFF PAPER]	(wird kurz angezeigt)
	STOP	LOCAL 1 ELQ	
	STOP	READY 1 ELQ	

Example of print menu PP 803:

PRINT OUT FW-VERSION 20xxxxxx HW-VERSION 29xxxxxx FPGA 5.0 PAGE COUNT 213856

INTERFACE

I/F TYP	PARALL./ RS232				
WORD LENGTH	8 BIT				
BAUD RATE	9600 BIT/S				
PARITY BIT EVEN					
PROTOCOLDTR					
DSR/CTS MODE	IGNOR. DSR+CTS				
I/O BUFFER	8 KBYTE				
MENU ACCESS	FULL ACCESS				
	CURRENT SETTINGS	MACRO 1*	MACRO 2	MACRO 3	MACRO 4
PAPER SOURCE	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER
PAPER EXIT PATH	BATCH	BATCH	BATCH	BATCH	BATCH
STACK. CAPACITY	-	-	-	-	-
BATCH CAPACITY	-	-	-	-	-
PRINT POS. ADJ.					
TRACT. L. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. L. H-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. H-POS	0.0	0.0	0.0	0.0	0.0
MANUAL V-POS	0.0	0.0	0.0	0.0	0.0
MANUAL H-POS	0.0	0.0	0.0	0.0	0.0
PAGE LENGHT	72 LINES	72 LINES	72 LINES	72 LINES	72 LINES
PRINT QUALITY	LQ	LQ	LQ	LQ	LQ
FONT	DATA	DATA	DATA	DATA	DATA
PITCH	10 CPI	10 CPI	10 CPI	10 CPI	10 CPI
LINE	6 LPI	6 LPI	6 LPI	6 LPI	6 LPI
EMULATION	EPSON LQ	EPSON LQ	IBM PROPR.	IBM PROPR. AGM	EPSON LQ
CHARACTER SET	EPSON EXT. GCT 1: U.S.A.	EPSON EXT. GCT 1: U.S.A.	IBM SET 2 1: U.S.A.	IBM SET 2 1: U.S.A.	EPSON EXT. GCT 1: U.S.A.
LEFT MARGIN	1. COLUMNS	1. COLUMNS	1. COLUMNS	1. COLUMNS	1. COLUMNS
RIGHT MARGIN	92. COLUMNS	92. COLUMNS	92. COLUMNS	92. COLUMNS	92. COLUMNS
LINE MODE	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR
TRACT. FF-MODE	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES
PERF. SKIP	YES	YES	YES	YES	YES
TEAR-OFF-MODE	NO	NO	NO	NO	NO
AUTO WRAP MODE	ON	ON	ON	ON	ON
$$ COMMANDS	NO	NO	NO	NO	NO

Note: An asterisk (*) after MACRO 1 indicates the actual macro.The values behind FW- and HW-VERSION indicates the actual release.

All standard settings of the firmware will be restored with the menu function **RECALL FACTORY**.

Example of print menu PP 806:

PRINT OUT FW-VERSION 20xxxxxx HW-VERSION 29xxxxxx FPGA 5.0 PAGE COUNT 213856

INTERFACE

I/F TYP	PARALL./ RS232				
WORD LENGTH	8 BIT				
BAUD RATE	9600 BIT/S				
PARITY BIT EVEN					
PROTOCOL DTR					
DSR/CTS MODE	IGNOR. DSR+CTS				
I/O BUFFER	8 KBYTE				
MENU ACCESS	FULL ACCESS				
	CURRENT SETTINGS	MACRO 1*	MACRO 2	MACRO 3	MACRO 4
PAPER SOURCE	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER
PAPER EXIT PATH	BATCH	BATCH	BATCH	BATCH	BATCH
STACK. CAPACITY	-	-	-	-	-
BATCH CAPACITY	-	-	-	-	-
PRINT POS. ADJ.					
TRACT. L. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. L. H-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. H-POS	0.0	0.0	0.0	0.0	0.0
MANUAL V-POS	0.0	0.0	0.0	0.0	0.0
MANUAL H-POS	0.0	0.0	0.0	0.0	0.0
BIN 1 V-POS	0.0	0.0	0.0	0.0	0.0
BIN 1 H-POS	0.0	0.0	0.0	0.0	0.0
BIN 2 V-POS	0.0	0.0	0.0	0.0	0.0
BIN 2 H-POS	0.0	0.0	0.0	0.0	0.0
BIN 3 V-POS	0.0	0.0	0.0	0.0	0.0
BIN 3 H-POS	0.0	0.0	0.0	0.0	0.0
PAGE LENGHT	72 LINES	72 LINES	72 LINES	72 LINES	72 LINES
PRINT QUALITY	LQ	LQ	LQ	LQ	LQ
FONT	DATA	DATA	DATA	DATA	DATA
PITCH	10 CPI	10 CPI	10 CPI	10 CPI	10 CPI
LINE	6 LPI	6 LPI	6 LPI	6 LPI	6 LPI
EMULATION	EPSON LQ	EPSON LQ	IBM PROPR.	IBM PROPR. AGM	EPSON LQ
CHARACTER SET	EPSON EXT. GCT 1: U.S.A.	EPSON EXT. GCT 1: U.S.A.	IBM SET 2 1: U.S.A.	IBM SET 2 1: U.S.A.	EPSON EXT. GCT 1: U.S.A.
LEFT MARGIN	1. COLUMNS	1. COLUMNS	1. COLUMNS	1. COLUMNS	1. COLUMNS
RIGHT MARGIN	165. COLUMNS	165. COLUMNS	165. COLUMNS	165. COLUMNS	165. COLUMNS
LINE MODE	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR
TRACT. FF-MODE	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES
PERF. SKIP	YES	YES	YES	YES	YES
TEAR-OFF-MODE	NO	NO	NO	NO	NO
AUTO WRAP MODE	ON	ON	ON	ON	ON
$$ COMMANDS	NO	NO	NO	NO	NO

Note: An asterisk (*) after MACRO 1 indicates the actual macro.The values behind FW- and HW-VERSION indicates the actual release.

All standard settings of the firmware will be restored with the menu function **RECALL FACTORY**.

Example of print menu PP 809:

PRINT OUT FW-VERSION 20xxxxxx HW-VERSION 29xxxxxx FPGA 5.0 PAGE COUNT 213856

INTERFACE

I/F TYP	PARALL./ RS232
WORD LENGTH	8 BIT
BAUD RATE	9600 BIT/S
PARITY BIT EVEN	
PROTOCOLDTR	
DSR/CTS MODE	IGNOR. DSR+CTS
I/O BUFFER	8 KBYTE

MENU ACCESS FULL ACCESS

	CURRENT SETTINGS	MACRO 1*	MACRO 2	MACRO 3	MACRO 4
PAPER SOURCE	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER
PAPER EXIT					
PATH	BATCH	BATCH	BATCH	BATCH	BATCH
STACK. CAPACITY	-	-	-	-	-
BATCH CAPACITY	-	-	-	-	-
PRINT POS. ADJ.					
TRACT. L. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. L. H-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. H-POS	0.0	0.0	0.0	0.0	0.0
PAGE LENGHT	72 LINES	72 LINES	72 LINES	72 LINES	72 LINES
PRINT QUALITY	LQ	LQ	LQ	LQ	LQ
FONT	DATA	DATA	DATA	DATA	DATA
PITCH	10 CPI	10 CPI	10 CPI	10 CPI	10 CPI
LINE	6 LPI	6 LPI	6 LPI	6 LPI	6 LPI
EMULATION	EPSON LQ	EPSON LQ	IBM PROPR.	IBM PROPR. AGM	EPSON LQ
CHARACTER SET	EPSON EXT. GCT	EPSON EXT. GCT	IBM SET 2	IBM SET 2	EPSON EXT. GCT
	1: U.S.A.	1: U.S.A.	1: U.S.A.	1: U.S.A.	1: U.S.A.
LEFT MARGIN	1. COLUMNS	1. COLUMNS	1. COLUMNS	1. COLUMNS	1. COLUMNS
RIGHT MARGIN	165. COLUMNS	165. COLUMNS	165. COLUMNS	165. COLUMNS	165. COLUMNS
LINE MODE	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR	LF=LF, CR=CR
TRACT. FF-MODE	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES	NO BLANK PAGES
PERF. SKIP	YES	YES	YES	YES	YES
TEAR-OFF-MODE	NO	NO	NO	NO	NO
AUTO WRAP MODE	ON	ON	ON	ON	ON
$$ COMMANDS	NO	NO	NO	NO	NO

Note: An asterisk (*) after MACRO 1 indicates the actual macro.The values behind FW- and HW-VERSION indicates the actual release.

All standard settings of the firmware will be restored with the menu function **RECALL FACTORY**.

Example of configuration

CONFIGURATION FW-VERSION 202xxxxx PAGE COUNT 126

C031 ISO 8859/1 CO32 ISO 8859/15 C061 IBM SET 1
C062 IBM SET 2 C063 IBM CODE PAGE C071 EPSON EXT. GCT
C100 CODE PAGE EE C101 CODE PAGE EE2

DATA		ROMAN	NLQ	ROMAN	LQ
SANS SERIF	NLQ	SANS SERIF	LQ	COURIER	NLQ
COURIER	LQ	PRESTIGE	NLQ	PRESTIGE	LQ
SCRIPT	NLQ	SCRIPT	NQ	OCR B	LQ
OCR A	LQ	ORATOR-C	NLQ	ORATOR-C	LQ
ORATOR	NLQ	ORATOR	LQ	DATA LARGE	LQ

ZEICHENSATZ : EPSON EXT. GCT 1: U.S.A.

DATA DRAFT

$!"#$%&'()+,-./01234567890:;<=>?@ABCDEF.....

.

.

Note: The value after FW-VERSION (red) indicates the actual release of the printer firmware.

Example of print letter (Dr. Grauert)

```
 Eilzustellung

Norddeutsche Farbwerke KG Herrn Dr. Grauert
Große Elbstraße 64

2000 Hamburg 4
Org. III 5/37          H-A    4 34    22.04.75
17.04.75               Volkmann

Vordruckgestaltung for den allgemeinen Schrift-
verkehr, for das Bestell- und Rechnungswesen    E i l t
Sehr geehrter Herr Dr. Grauert,
Sie können das Schreiben der Briefe, Bestellungen,
Rechnungen usw. sowie das Bearbeiten des Schriftguts
rationalisieren, wenn die Vordrucke Ihres Unternehmens
den folgenden Normen entsprechen:

    DIN 676 Geschäftsbrief; Vordrucke A4 DIN 677 -;
    Vordruck A5
    DIN 679 Geschäftspostkarte; Vordrucke A6

    DIN 4991 Vordrucke im Lieferantenverkehr; Rechnung
    DIN 4992 -; Bestellung (Auftrag)
    DIN 4993 -; Bestellungsannahme (Auftragsbestätigung)
    DIN 4994 -; Lieferschein/Lieferanzeige
    DIN 4998 Entwurfsblätter for Vordrucke

Diese Normen enthalten alle Einzelheiten for den
sinnvollen und zweckmäßigen Aufdruck. Wenn dazu bei
der Beschriftung genormter Vordrucke DIN 5008 ‚Regel
for Maschinenschreiben' beachtet wird, entstehen
übersichtliche und werbewirksame Schriftstücke.

Die beigefügten 6 Mustervordrucke zeigen, dass das
Beachten der Normen die künstlerische und werbewirksame
Gestaltung der Vor- drucke nicht ausschließt.

Da wir uns auf die Herstellung genormter Vordrucke
spezialisiert haben, können wir besonders billig
liefern. Eine Probestellung wird Sie und Ihre
Geschäftsfreunde von den Vorteilen überzeugen.

Mit bester Empfehlung NORAG
Druckerei und Verlagshaus KG

Herrmann Anlagen
6 Mustervordrucke
```

Note: By pressing the key the print job will be interrupted and then with the following key sequence and terminated

Example of print lines

```
ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!$
$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!
!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
9!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz012345678
89!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01234567
789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456
6789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz012345
56789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01234
456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123
3456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz012
23456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01
123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0
0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
z0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxy
yz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwx
xyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvw
wxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuv
vwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstu
uvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrst
tuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrs
stuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqr
rstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopq
qrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnop
pqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmno
opqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmn
nopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklm
mnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijkl
lmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijk
klmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghij
jklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghi
ijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefgh
hijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefg
ghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdef
fghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcde
efghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcd
defghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabc
cdefghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZab
bcdefghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZa
cdefghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZab
defghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabc
efghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcd
fghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcde
ghijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdef
hijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefg
ijklmnopqrstuvwxyz0123456789!$ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefgh
```

etc.....

Hinweis: Durch Betätigung der Taste wird der Druckvorgang unter-brochen und dann mit den Tasten und beendet.

2.10 Connection to the system

Ethernet / Parallel / Serial Interface

- Switch the printer and the computer OFF.
- Connect the interface cable coming from the computer to the printer‘s parallel (1), serial (2) or ethernet port.

The following values are default settings for serial or shared mode, see chapter **PRINT MENU**.

- Word Length: 8 bit
- Baud-Rate 9600 BPS
- Parity Bit: Even
- Protocol DTR
- DSR/CTS Mode Ignore DSR+CTS
- I/F Buffer 64 K-Byte

After powering the printer ON both interfaces, serial and parallel, are available for data transfer due to the shared mode. The port to which data is sent becomes active automatically.
For changing the parameters, see Appendix **A System Interface Description.**

2.11 Printer driver

Introduction

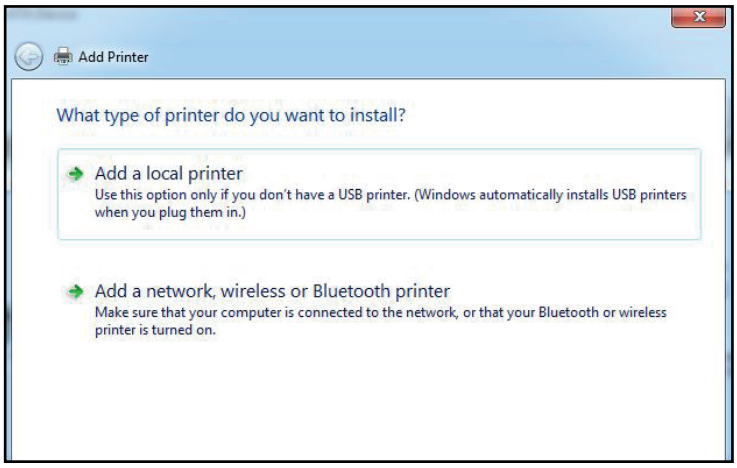
This part of the documentation describes the features of the printer driver for the models PP803, PP803C, PP806 and PP809, hereinafter also referred to as PP 80X.
The printer driver is available for Microsoft Windows NT2000,WIN X P Vista W IN7, WIN8, WIN10,SERVER 2003 and 2008. It allows the PP 80X variants from all Windows applications to print in graphics mode both as text. Here, all printer features such as the video resolution, paper management, printer fonts, macro switch, etc. provided by the driver. It includes the models PP 80X in the languages English and German.
The printer driver is installed under Control Panel -> Printers Microsoft Windows. A detailed description can be found in the respective user manual for Windows.

The driver is delievered with the product CD by the printer or can be download on PSi WEB-Page https://psi-matrix.eu/en/printer-driver/

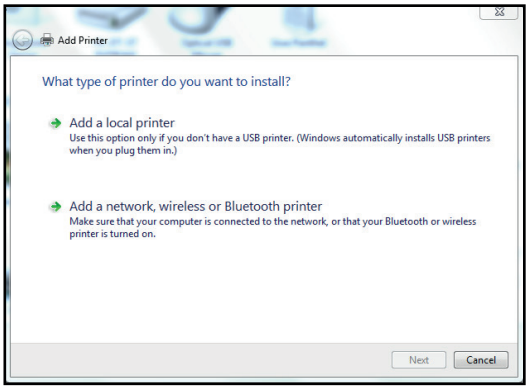
General: The following list describes the features supported by the printer driver. The base is the driver, the Epson LQ emulation and the ISO 8859-15 character table. For additional features, such as the selection of fonts, shaft selection, cutting instructions, page lengths are used PSi own commands. The printer driver is therefore not to use original EPSON printers or compatible printers.

2.11.1 Driver installation

- Open Control Panel -> Hardware and Sound -> Devices and Printers

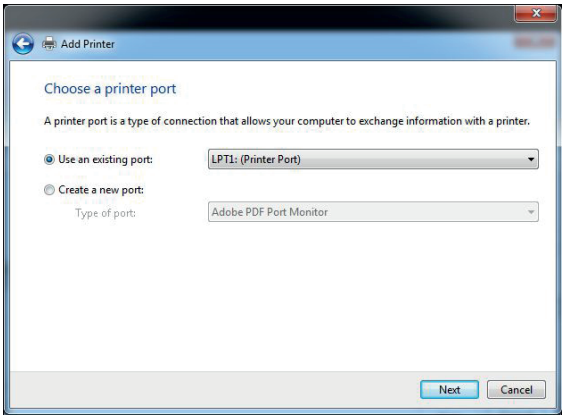


- Add a Printer

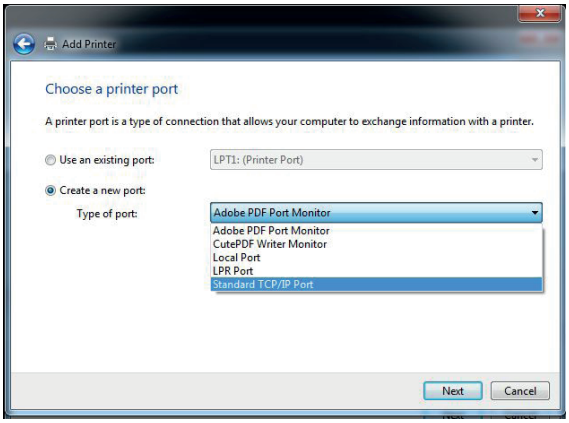


- Add a Local Printer -> next

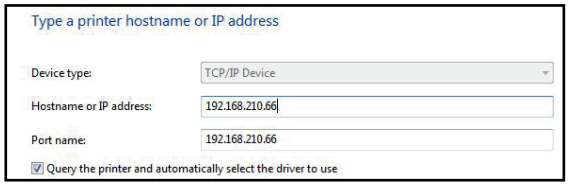
- choose a printer port -> next



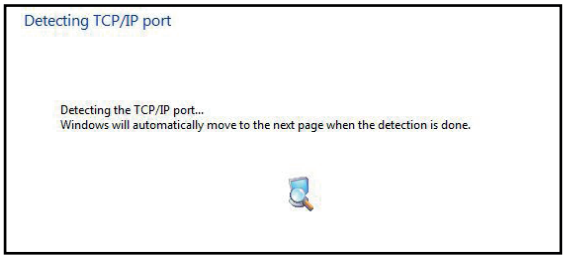
- create a new port (example: Standard TCP/IP Port)



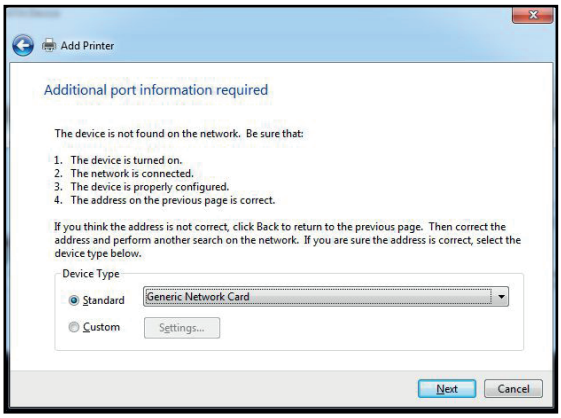
- put in Data for the port

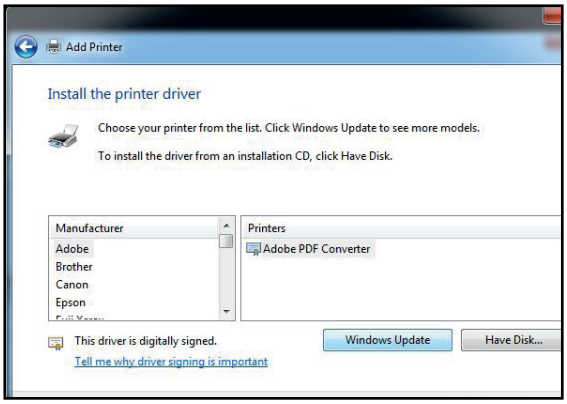


- -> next the system try to detect the TCP/IP port (printer must switched on)

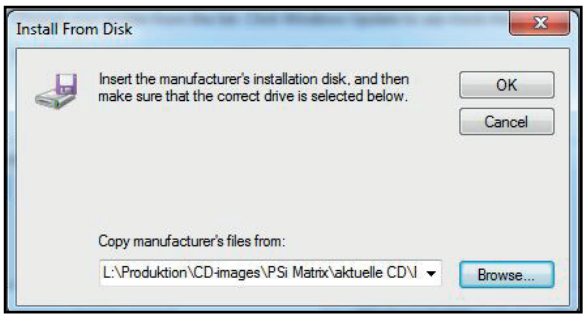


- choose Generic Network Card -> next

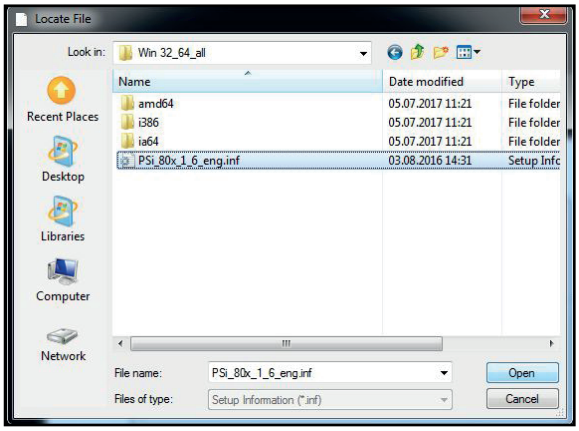




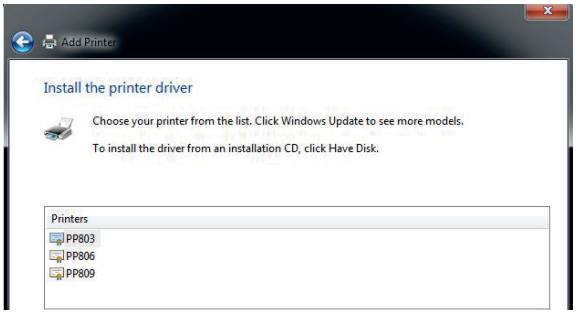
- choose the folder where the driver is placed by „Have a disk“



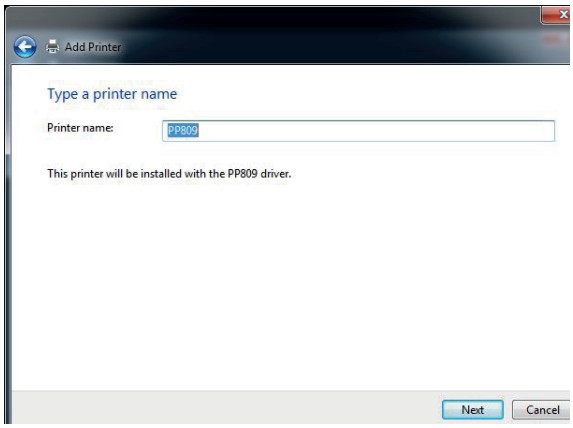
- Select the * .INF of the unpacked printer driver and open.



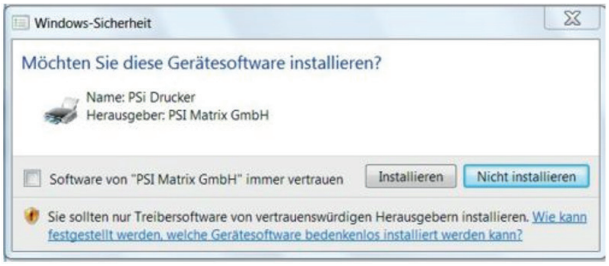
- open -> OK ->

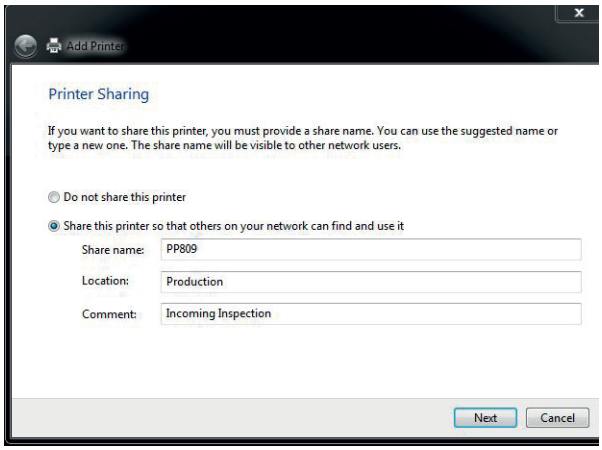


- select the signed printer modell

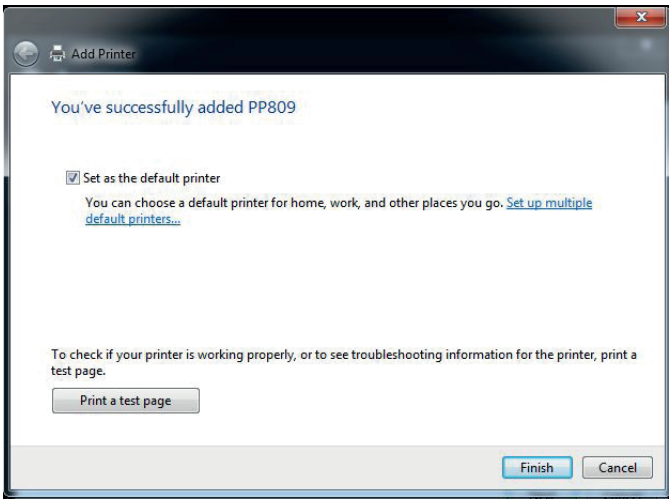


If PSi printer drivers are not yet installed on the PC or server, you will receive a request that you want to trust in the compilation of PSi. Put a tick on “Always trust PSi software” and install it.

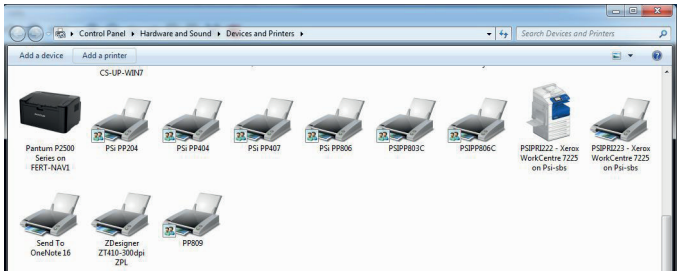




- Specify whether the printer should be used as the default printer. and finish. You can also print a test page. Prerequisite is that the printer port is configured correctly.
- Define printer name, location and/or give comment.



- Next ->



- The printer is now installed

2.12 Macros selection

The folowing Emulations are pre-defined:

- EPSON LQ / ESC/P2 in Macro 1
- IBM Proprinter XL 24 in Macro 2
- IBM Proprinter XL 24 AGM in Macro 3
- EPSON LQ / ESC/P2 in Macro 4

To change from one emulation to another, follow the procedure below. The ex- ample shows the keys to press along with the display information for a change from EPSON LQ / ESC/P2 in Macro 1 to IBM ProPrinter in Macro 2.

TASTEN SYMBOL	BEDEUTUNG	ANZEIGE	INFO
	[STOP] OFFline	STOP 1 ELQ	
	[MACRO SELECTION]	MAKRO 2 *	(Hold the key down and the available marco´s are scrolling in the display and stop pressing with selected Macro 2)
		MACRO 2 IPP	
	[STOP]	READY 2 IPP	

The information „**READY 2 IPP“** indicates the selected macro and the emulation of this macro, for example:

- ELQ Macro 1 with Epson Emulation
- IPP Macro 2 with IBM Proprinter Emulation
- AGM Macro 3 with IBM Proprinter AGM Emulation
- ELQ Macro 4 with Epson Emulation.

Note: A “Macro“ is a summary of application specific parameter settings. It is possible to have a total of four macros, each with a different summary of VALUE settings. The settings selected and confirmed are only active until the printer is switched off. In order to prevent losing your new settings you can save them using the function SAVE MENU

3. Printer Operation

Most of the printer functions can be executed via operator panel as well as via software commands from the host system. Some functions become only effective via Operator Panel keys, for example: locking/unlocking the printer.

3.1 Operator Panel

The Operator Panel

- Controls the set-up for communication with the host computer;
- Controls various parameter settings;
- Allows manual control of the paper handling;
- Gives information about the printer‘s status

① LCD Display
② Online / Offline
③ Ready LED
④ Print head unlock
⑤ Macro Select
⑥ Form Feed
⑦ Curser Keys for Navigation in the Menu Mode to enter the Menu Mode
⑧ To confirm / cancel a selection
⑨ Enter Menu

The LCD displays the current status of the printer. If an error occurs, the display is overwritten by the corresponding error message (eg with PAPER YESM TRF).

The green Power ON indicator (3) lights when the printer is powered by the power button

3.2 Key Functions

If the printer is powered on, the display shows **READY 1 ELQ** and the green LED lights. The printer is in the Ready Mode.

The printer works in two different modes, the Ready Mode and the Local Mode. To put the printer into the Local Mode, press th Online / Offline-key.

Ready Mode
In this mode only the red [Online/Offline] key is active and the green LED lights. By pressing the key the printer changes into the Local Mode and the green Online-LED extinguishes.

Local Mode
Depending on the state of the printer the three upper left keys have multiple functions. The functions are displayed by keeping the appropriate key pushed. Release the key as soon as the desired function is displayed. For further information see chapter **3.1** .

KEY SYMBOL	NAME	MEANING
	**[VORSCHUB]**	• [1]) EJECT PAPER • INSERT ASF (only **PP 806**) • INSERT MANUAL (**PP 806**; optionally **PP 803**) • INSERT TRACTOR • INSERT TRACTOR U(*pper*) • INSERT TRACTOR L(ower) PAPER TEAR OFF • PAPER PARK • FORM FEED • REV. FORM FEED
	**[SELECT MACRO]**	• MACRO 1 • MACRO 2 • MACRO 3 • MACRO 4
	**[UNLOCK]**	UNLOCK PRINTHEAD ***Info:*** works only if rear cover is opened before.

[1]) depends on paper source

The following keys have only one function:

KEY SYMBOL	NAME	MEANING
	**[START/STOP)**	After pressing this key, the printer enters the **ONLINE** or **OFFLINE** mode.
	**[MENU]**	To enter the Menu Mode at the first level
	**[CURSOR]** [UP] [LEFT], [RIGHT] [DOWN]	As soon as the menu mode has been activated, the four keys can only be used as cursor keys move within the menu tree
	[ENTER]	A selection can be confirmed. To cancel the selection, choose another item and press [ENTER] again. The selection becomes effective by pressing the [ONLINE/ OFFLINE] key. An asterisk (*) appears behind the actual displayed parameter
		Note: After closing the ear cover of the printer, the printer automatically locks the print head (if release before) and the ribbon cartridge. In order to change the print head. Open the rear cover and press the key  the print head will automaticly released. Remove print head cable and remove
Note.	An incorrect selection is undone by selecting another menu item and confirming with [ENTER]. The selection becomes effective only when the [READY / STOP] key is pressed.	

3.2.1 READY Mode

In the READY mode the [Online/Offline] key has a function:

After pressing  key the printer enters the **LOCAL** mode

3.2.2 STOP-Mode

All keys have at least one function. If one key has multiple functions they can be displayed by keeping that key pushed:

Note: The corresponding display messages are shown on page before.

KEY SYMBOL	MEANING
	After pressing that key the printer enters the **READY** mode
	**Single sheet:** • Only form feed function. Either the form is fed into print position or is ejected. **Fanfold Paper:** • Paper is in Park Position • Paper is fed into print position. • Paper is in Print Position • Paper is feed to the tear off position. • Paper is fed into park position. • Paper is in Tear Off Position • printer performs a form feed • Paper is feed into park position (for this function the paper has to be torn off) • printer performs a reverse form feed
	The four macros are displayed by keeping the key pushed. The actual macro is displayed first. Release the key as soon as the desired macro is displayed. This one will become the active one. How to confirm and save the selection see chapter **How to Save Settings**.
	Press the [Menu] key to activate the menu mode. The four arrows (up, down, right, and left) can be used as cursor keys to move within the menu tree. The menu tree is shown in chapter **Menu Structure**. To leave the menu mode press this key again

3.3 LCD-Anzeige

The LCD indicator gives information about the status of the printer. In general it can be distinguished between:

- ONLINE messages
- OFFLINE messages

Note: Messages which exceed the 16 character display, e.g. error messages, are horizontally scrolled.

The green LED lights when the printer is in the ONLINE mode and the display shows

When the printer is in the OFFLINE mode status information, error messages, or menu messages are displayed.

Example: The display contents after powering the printer on without a ribbon cassette.

Because of the error case the printer switches into the Offline Mode. Switch the printer on. The printer performs an internal test

The green LED is flashing and after a short moment the following term is displayed:

Note: In case of an error the printer switches into the Offline Mode.

And then, the message is scrolled:

Insert the ribbon cassette and close cover, see chapter Ribbon Installation.

After the automatic locking procedure the printer switches into the ONLINE Mode. The display shows

In this state it is possible to use all keys.

3.4 MENU-Mode

All selectable features are accessible via the operator panel and combined in the printer MENU. This feature provides:

- Easy configuration (language, etc.)
- Quick parameter changes
- Activation of test functions

There are three entry points:

- TEST MODES (4 test printouts and a Hexdump-function are available)
- DEFINE MACRO (1 of 4 macros can be selected and its contents defined)
- INSTALLATION (installation specific parameters can be defined)

SAVE MENU is another function at the first level of the menu tree which allows to save all selections permanently in a non-volatile memory.

The menu is organized in three levels:

- Level 1 Main Functions
- Level 2 Sub functions
- Level 3 Parameters and values

Level 1 (main functions) is entry point into the menu. There is only one main function in level 1 without an entry into a lower level, SAVE MENU.

Level 2 (sub functions) menu functions can be activated or a group of values can be chosen.

Level 3 (parameters and values at the lowest level) all menu items can be selected/activated.

To activate the menu please follow the next steps:

Press: 
The printer changes from the **READY** mode into the **LOCAL** mode. The display shows

LOCAL 1 ELQ

Note: The second term identifies the active macro and the emulation.

Press: 
Now, the printer enters the menu mode at the first level of the menu tree. The display shows:

TEST MODES ⇨

Note: As soon as the menu mode has been activated the arrow keys are useable as cursor keys to navigate within the menu tree (up, down, right, and left).

Press:  or 
Arrow down or arrow up are used within one level to shift menu functions into the display. The keys have a wrap around function

DEFINE MACRO ⇨

Press  The display shows

⇦SELECT MACRO ⇨

Now, you are at the sub function level.
Note: Movement in both directions is possible. Arrow right  is used to enter the next lower level and arrow left  is used to enter a higher level.

Press 
The display shows:

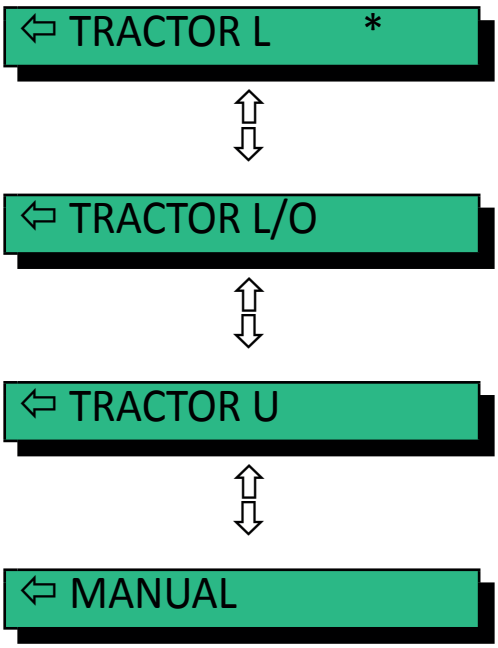
⇦ PAPER SOURCE ⇨

Press  and it appears the actual paper source: (possibly another previously selected paper path)

⇦ TRACTOR L *

The default value for PAPER SOURCE is TRACTOR LOWER At the lowest level, parameters and values, the asterisk (*) to the right indicates the actual selection.

Note: To change this parameter into paper source MANUAL, (**PP 806**; optionally **PP 803**)



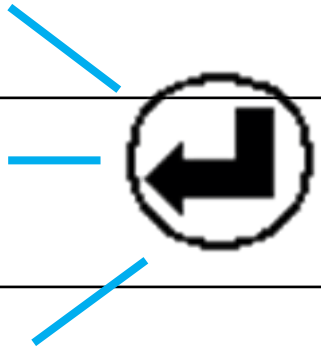
Examble: TRACTOR U (upper) will selected market with (*) confirm the selection by ENTER
The display shows:

With the key, this paper path becomes active and can now be used. However, this is not safe after switching off. If the tractor is to be active at the next printer start, it must be secured y save function.

3.5 Save Menu Parameters

The settings selected and confirmed are only active until the printer is switched off. In order to prevent from losing your new settings you can save them using the Main Function SAVE MENU.

KEY SYMBOL	NAME	MEANING
	[START/STOP)	Switches from ONLINE to OFFLINE (and reverse)
	[MENU]	TEST MODE ⇨
	[CURSOR KEY]	SAVE MENU
	[ENTER]	SAVE (Display Blinks)
	[START/STOP)	READY 1ELQ



Note: The overview of the current settings and the four macros can be printed out with the function PRINT MENU.

4. Printer Configuration

4.1 What is „configuration“

This chapter describes how to use the operator panel and menu settings to set up or configure your printer, so that the printer and your computer system can communicate correctly with each other.

Communication between the two requires that both, the computer operating sy- stem and the printer have the same communication settings or features. The most important of those are:

- protocol,
- baud rate,
- word length,
- I/F type,
- Parity.

You may also need to change some of the printer‘s other features depending on your hardware and application requirements, for example:

- Paper handling
- Text processing.

The MENU mode allows you to access the configuration memory. All settings of the printer are stored in this memory and can be printed. The possible settings are described in detail on the following pages. A short view of all Menu settings you will find in chapter **Menu Item Description**, and a detail description in chapter **Explanation of Individual Menu Items**.

The standard parameter setting can be printed by using the function **PRINT MENU**. The following steps show which keys to use to start this printout.

KEY SYMBOL	NAME	DISPLAY
	[START/STOP]	LOCAL 1 ELQ
	[MENU]	TEST MODE ⇨
	[RIGHT]	⇦ PRINT MENU
	[ENTER]	PRINT MENU *
	[START/STOP]	PRINT MENU (Printout starts)
After feeding paper from the defined paper source the printer starts to print. When printing is completed the following message will be displayed:		
	[FORM FEED]	⇦ PRINT MENU PAPER TEAR OFF (Short displayed)
	[START/STOP]	⇦ PRINT MENU READY 1 ELQ

The printout is printed on the previously selected paper path.

4.2 Explanation of the „MENU PRINT OUT“

PRINT OUT FW-VERSION 20xxxxxx HW-VERSION 29xxxxxx FPGA 5.0 PAGE COUNT 213856

INTERFACE

I/F TYP	PARALL./ RS232
WORD LENGTH	8 BIT
BAUD RATE	9600 BIT/S
PARITY BIT	EVEN
PROTOCOL	DTR
DSR/CTS MODE	IGNOR. DSR+CTS
I/O BUFFER	64 KBYTE

MENU ACCESS FULL ACCESS

	CURRENT SETTINGS	MACRO 1*	MACRO 2	MACRO 3	MACRO 4
PAPER SOURCE	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER	TRACTOR LOWER
PAPER EXIT PATH	BATCH	BATCH	BATCH	BATCH	BATCH
STACK. CAPACITY	-	-	-	-	-
BATCH CAPACITY	-	-	-	-	-
PRINT POS. ADJ.					
TRACT. L. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. L. H-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. V-POS	0.0	0.0	0.0	0.0	0.0
TRACT. U. H-POS	0.0	0.0	0.0	0.0	0.0
MANUAL V-POS	0.0	0.0	0.0	0.0	0.0
MANUAL H-POS	0.0	0.0	0.0	0.0	0.0
PAGE LENGHT	72 LINES	72 LINES	72 LINES	72 LINES	72 LINES
PRINT QUALITY	LQ	LQ	LQ	LQ	LQ
FONT	DATA	DATA	DATA	DATA	DATA
PITCH	10 CPI	10 CPI	10 CPI	10 CPI	10 CPI
LINE	6 LPI	6 LPI	6 LPI	6 LPI	6 LPI

ect.....

In the header, behind the text: FW VERSION, you will find the number „release status“ of the printer firmware, the hardware version, the FPGA and the page counter (number of printed pages)

INTERFACE - here are the default settings for transferring data from the computer to the printer. They are the following settings:

- Interface Typ PARALL./RS232
- Word Lenght 8 Bit
- Baud-Rate 9600 Bit/s
- Parity even
- Protokoll DTR
- DSR / CTS Mode Ignor. DSR+CTS
- I/O Buffer size 64 KByte

All MACRO settings are listed. MACRO 1 is the Current valid setting, it is indicated by an asterisk (*).

4.4 Short description of the menu items of the macro and tests

The following tables show the menu and submenu items as well as the associated parameters with the possible settings. An asterisk (*) indicates the default (factory default).

4.4.1 Printer Tests

ITEM	FUNCTION
PRINT MENU	Printout of the settings, the release status and the page counter
CONFIGURATION	Printout of all available fonts, current status of the page counter
PRINT LETTER	Printout of the standardized letter according to ECMA-132
DIAGONAL TEST	Print all printable characters (endless must be canceled)
HEX DUMP	With this setting, the print file is printed out as a control character (HEC code). Used for data stream analysis.

4.4.2 Macro Select

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO**

ITEM	FUNCTION	DEFAULT
MACRO 1	User Configuration 1	*
MACRO 2	User Configuration 2	
MACRO 3	User Configuration 3	
MACRO 4	User Configuration 4	

4.4.3 Papersource

Selectable via

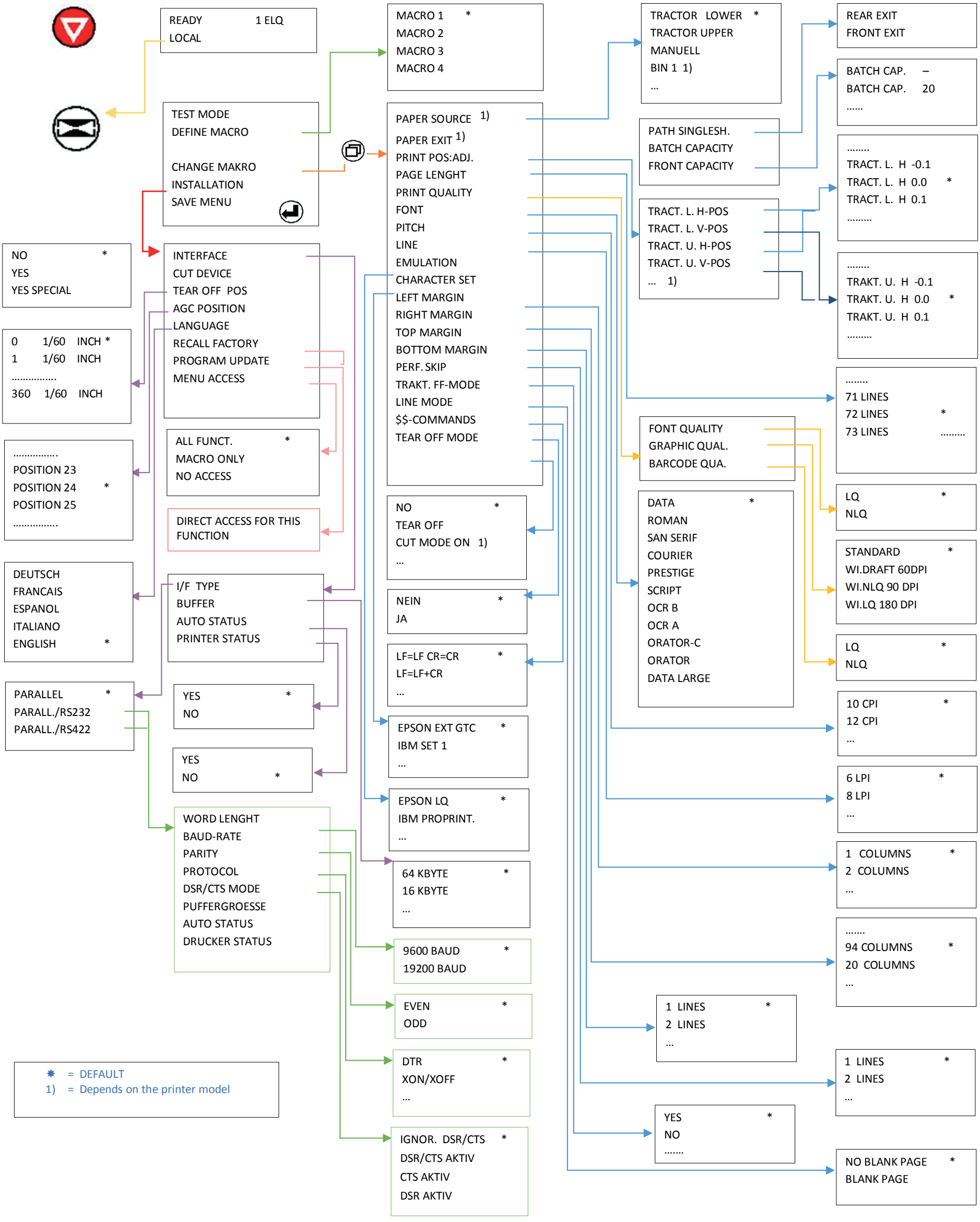
MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**PAPER SOURCE** ⇨

ITEM	FUNCTION	DEFAULT
PAPIERQUELLE	• TRACTOR L • TRACTOR L/U • TRACTOR U • MANUAL (PP 806; Option for PP 803) • BIN 1 1) • BIN 2 1) • BIN 3 1) • BIN 1/2 1) • BIN 2/3 1) • BIN 1/2/3 1)	*

1) The menu items CASSETTE 1 to CASSETTE 1/2/3 are only for the printer PP 806 and are only displayed if the corresponding ASF cassettes are installed

Structure of Menu

Menu Tree PP 80x



4.4.4 Papr Exit

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**PAPER EXIT** ⇨

ITEM	FUNCTION	DEFAULT
Path	Stacker Manual	*
BATCH CAPACITY	BATCH CAP. (range: ; 20 up to 600; steps = 20)	

Note: The menu item **MANUAL** for Paper Source or Paper Exit can only be activ-ated in conjunction with the optional Manual Sheet Feeder for the printer **PP 803**. The Manual Sheet Feeder is standard in printer **PP 806**.

4.4.5 Justiy first print position

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩ **DRUCKPOS. JUST** ⇨

ITEM	FUNCTION	DEFAULT
TRACT.U. V-POS	TRACT. U. V. 0.0 -24.0 to 99.9; in Steps of 1/6 Inch	V 0.0 *
TRACT.U. H-POS	TRACT.U. H. 0.0 -6.0 to 6.0; in Steps of 1/ 10 Inch	H 0.0 *
TRACT.O. V-POS	TRACT. U. V. 0.0 -24.0 to 99.9; in Steps of 1/6 Inch	V 0.0 *
TRACT.O. H-POS	TRACT.U. H. 0.0 -6.0 to 6.0; in Steps of 1/ 10 Inch	H 0.0 *
Manual V-POS	Manual V. 0.0 -24.0 to 99.9; in Steps of 1/6 Inch	V 0.0 *
Manual H-POS	Manual H. 0.0 -6.0 to 6.0; in Steps of 1/ 10 Inch	H 0.0 *
BIN 1 V-POS	BIN1 V. 0.0 -24.0 to 99.9; in Steps of 1/6 Inch	V 0.0 *
BIN 1 H-POS	BIN 1 H. 0.0 -6.0 to 6.0; in Steps of 1/ 10 Inch	H 0.0 *
BIN 2 V-POS	BIN 2 V. 0.0 -24.0 to 99.9; in Steps of 1/6 Inch	V 0.0 *
BIN 2 H-POS	BIN 2 H. 0.0 -6.0 to 6.0; in Steps of 1/ 10 Inch	H 0.0 *
BIN 3 V-POS	BIN 3 V. 0.0 -24.0 to 99.9; in Steps of 1/6 Inch	V 0.0 *
BIN 3 H-POS	BIN 3 H. 0.0 -6.0 to 6.0; in Steps of 1/ 10 Inch	H 0.0 *

Manual for **PP 806** as Option by **PP 803**.
ASF Cassettes (BIN 1 to BIN 3) only for printer **PP 806**.

4.4.6 Page Lenght

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**PAGE LENGHT** ⇨

ITEM	FUNCTION	DEFAULT
PAGE LENGHT	72 LINES (Range: 1 to 144 Lines)	*

4.4.7 Print Quality

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**DRUCKQUALITAET** ⇨

ITEM	FUNCTION	DEFAULT
FONT QUAL.	LQ NLQ (DRAFT is automatically assigned to the font DATA)	*
GRAPHIC QUAL.	STANDARD WIN.LQ 180 DPI WIN.NLQ 90 DPI WI.DRAFT 60 DPI	*
BARCODE QUAL.	LQ NLQ	*

4.4.8 Font

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩ **FONT** ⇨

ITEM	FUNCTION	DEFAULT
FONT	DATA Draft ROMAN LQ / NLQ SANS SERIF LQ / NLQ COURIER LQ / NLQ PRESTIGE LQ / NLQ SCRIPT LQ / NLQ OCR B LQ OCR A LQ ORATOR-C LQ / NLQ	*

4.4.10 Pitch

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩ **PITCH** ⇨

ITEM	FUNCTION	DEFAULT
PITCH	10 CHAR / Inch 12 CHAR / Inch 15 CHAR / Inch 17 CHAR / Inch 18 CHAR / Inch 20 CHAR / Inch	*

4.4.11 Line

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**LINE MODE** ⇨

ITEM	FUNCTION	DEFAULT
LINE MODE	2 ZEILEN / Inch 3 ZEILEN / Inch 4 ZEILEN / Inch 6 ZEILEN / Inch 8 ZEILEN / Inch 12 ZEILEN / Inch	*

4.4.12 Emulation

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**EMULATION** ⇨

ITEM	FUNCTION	DEFAULT
EMULATION	EPSON LQ IBM PROPR. IBM PROPR. AGM	Depending on the selected macro

4.4.13 Character Set

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**CHARACTER SET** ⇨

ITEM	FUNCTION	DEFAULT
ISO 8859/1 ISO 8859/5 ISO 8859/9 ISO 8859/15	Western Europe/American Latin/Cyrillic Turkish Western Europe/American(€)	
IBM SET 1 / IBM SET 2	1: U.S.A. 2: FRANCE 3: GERMANY 4: U.K. 5: DENMARK 6: SWEDEN 7: ITALY 8: SPAIN 9: YESPAIN 10: NORWAY 11: DENMARK 2 12: SPAIN 2 13: LATIN AM. 14: TURKEY	*
IBM CODE PAGE	1: PAGE 437 2: PAGE 850 3: PAGE 860 4: PAGE 863 5: PAGE 865 6: PAGE 858 7: PAGE 857	*
EPSON EXT. GCT	1: U.S.A. 2: FRANCE 3: GERMANY 4: U.K. 5: DENMARK 6: SWEDEN 7: ITALY 8: SPAIN 9: YESPAIN 10: NORWAY 11: DENMARK 2 12: SPAIN 2 13: LATIN AM. 14: TURKEY 15: LEGAL	*

ITEM	FUNCTION	DEFAULT
CODE PAGE EE	1: CP 437 GK 2: CP 851 GK 3: CP 928 GK 4: CP 855 CYRI 5: CP 866 6: CP 869 7: CP 852 8: KAMENICKY 9: ISO LATIN 2 10: MAZOVIA 11: CP 437 HUN 12: CP 852 SEE 13: CP 866 LAT 14: CP WIN LAT2	
CODE PAGE EE2	1: CP 771 2: CP 773 3: CP 774 4: CP 775 5: BALTIC RIM 6: CP 1250 7: CP 1125	*

4.4.14 Left Margin

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩ **LEFT MARGIN**⇨

ITEM	FUNCTION	DEFAULT
LEFT MARGIN	1. POSITION (Range: 1 to 16; Schritte $^{1}/_{10}$ Inch)	*

4.4.15 Right Margin

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**RIGHT MARGIN** ⇨

ITEM	FUNCTION	DEFAULT
RIGHT MARGIN	165. POSITION 136. POSITION 132. POSITION 80. POSITION 94. POSITION (Range: 10 to 94; Schritte $^{1}/_{10}$ Inch)	(only PP 806/PP 809*) (only PP 806/PP 809) (only PP 806/PP 809) (only PP 803*)

4.4.16 Line Mode

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**ZEILENMODE** ⇨

ITEM	FUNCTION	DEFAULT
ZEILENMODE	LF = LF, CR = CR LF = LF + CR CR = LF+CR LF, CR = LF + CR	*

4.4.17 Tractor Form Feed Mode

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**TRACT. FF-MOD** ⇨

ITEM	FUNCTION	DEFAULT
TRACT. FF-MODE	NO BLANK PAGES BLANK PAGES	*

4.4.18 Perf. Skip

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**PERF. SKIP** ⇨

ITEM	FUNCTION	DEFAULT
PERF. SKIP	YES NO NO / OVERRLAP. YES / OVERLAP.	*

4.4.19 Tear-Off-Mode

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**TEAR-OFF-MODE** ⇨

ITEM	FUNCTION	DEFAULT
TEAR-OFF-MODE	NO TEAR OFF 10 S. TEAR OFF 1 S. CUT 10 S. NO FF 1) CUT 1 S. NO FF 1) CUT 1S WITH. FF 1) CUT MODE ON 1)	*

1) Is only visible when (**CUTTER = YES**).

4.4.20 Auto Wrap Mode

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**AUTO WRAP MODE** ⇨

ITEM	FUNCTION	DEFAULT
AUTO WRAP MODE	YES NO	*

4.4.21 $$-Befehl

Selectable via

MENU TEST MODE ⇩ **CHANGE MACRO** ⇨ **SELECT MACRO** ⇩**$$-COMMAND** ⇨

ITEM	FUNCTION	DEFAULT
$$-COMMAND	NO YES	*

4.5 Short description Installation

The following tables show the menu Installation and submenu items as well as the associated parameters with the possible settings. An asterisk (*) indicates the default (factory default).

4.5.1 Interface Typ

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇨ **I/F TYP** ⇩

ITEM	FUNCTION	DEFAULT
I/F TYP	PARALLEL PARALL. / RS232 PARALL. / RS422	*
WORD LENGHT 1)	7 BIT 8 BIT	*
BAUD-RATE [1])	1200 BIT / S 2400 BIT / S 4800 BIT / S 9600 BIT / S 19200 BIT / S	*
PARITY [1])	EVEN ODD NONE	*
PROTOCOL [1]) [2])	DTR XON / XOFF XON / XOFF + DTR	*
DSR / CTS MODE [1])	IGNOR. DSR+CTS DSR+CTS ACTIVE CTS ACTIVE DSR ACTIVE	*
BUFFER [1])	64 KBYTE 32 KBYTE 8 KBYTE 1 KBYTE	*
AUTO-STATUS	YES NO	*
PRINTER-STATUS	YES NO	*

[1]) Only displayed if there is a serial INTERFACE.

[2]) Changes automatically from DTR to XON / XOFF when the INTERFACE RS422 has been selected.

4.5.2 CUT Option

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩ **CUT DEVICE** ⇨

ITEM	FUNCTION	DEFAULT
CUT DEVICE	NO YES YES, SPECIAL	*

4.5.3 Set vertical cutting position (if option Schneider is Active)

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩ **CUT V-POS** ⇨

ITEM	FUNCTION	DEFAULT
CUT V-POS LO	CUT. V. O. -8 to +360; in Steps of 1/60 Inch	0*
CUT V-POS UP	CUT. V. U. -8 to +8; in Steps of 1/60 Inch	0*

4.5.4 Set vertical tear-off position (if option Schneider is not Installed or Active)

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩ **TEAR-OFF POS** ⇨

ITEM	FUNCTION	DEFAULT
TEAR-OFF V-POS.	1 to +360; in Steps of 1/60 Inch	0*

4.5.5 AGC Position

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩**AGC POSITION** ⇨

ITEM	FUNCTION	DEFAULT
AGC POSITION	POSITION 24 (Range. 4 to 87) (PP 803) (Range: 4 to 131) (PP 806/PP 809)	*

4.5.6 Language (Menu)

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩**LANGUAGE**

⇨

ITEM	FUNCTION	DEFAULT
LANGUAGE	ENGLISH DEUTSCH FRANCAIS ESPANOL ITALIANO)	*

4.5.7 Reset to factory defaults

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩**FACTORY DEFAULT** ⇨

ITEM	FUNCTION	DEFAULT
FACTORY DEFAULT	Resets the printer to the factory default	

4.5.8 Update printer firmware

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩**PROGRAM UPDATE** ⇨

ITEM	FUNCTION	DEFAULT
PROGRAM UPDATE	Loading the new firmware is only possible via the interface cable from the computer system. All menu settings are reset to factory values!	

4.5.9 Menu access

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇨ **INTERFACE** ⇩**MENUE ACCESS** ⇨

ITEM	FUNCTION	DEFAULT
MENUE ACCESS	FULL ACCESS. Only MAKROS NO ACCESS	All menu functions are available * Only Access to the macro functions Access to the menu is not possible for the user.

Cancel the menu lock:

Turn off the printer. Press  and  simultaneously to turn on the printer. When the MENU ACCESS message appears, release the buttons.

In MENU ACCESS the function ALL FUNC. and set with  key. Then should the menu will be saved.

4.5.9 Save Menu

Selectable via

MENU TEST MODE ⇩ **INSTALLATION** ⇩**SAVE MENU**

ITEM	FUNCTION	DEFAULT
SAVE MENU	SAVE	

4.6 Description of the Individual Menu Items

Main Functions and Entry Points into the menu
The following Main Functions are available:

TEST MODES
There are 4 test printouts and the hex dump function available. (For detail information see chapter **5.3** beginning on the next page).

DEFINE MACRO
Behind this menu point there are all functions and parameters to define a macro. (For detail information see chapter **5.4**).

INSTALLATION
In the first sub function named INTERFACE you can manipulate parameters to enable communication with the host. (See Chapter **5.4**).

SAVE MENU
Any desired changes to the default settings can be saved here. After power on the new settings are activated.

While this function is operating the display flashes **SAVING NOW**.

4.6.1 Test Mode

PRINT MENU
This test printout shows the current settings of all parameters and the contents of the macros. This printout is helpful for future reference and when macros are to be changed. For detail see chapter 4.2 Standard Configuration.

CONFIGURATION
This test printout lists all available fonts, contains the page count to identify the actual number of printed pages, and gives information on technical releases which are intended for service purposes. You will find a sample in chapter 1.9 PRINT MENU

PRINT LETTER

This test printout produces a standard letter (ECMA-132) which can be used for measuring the printer's throughput. See a sample in chapter 1.9 PRINT MENU.

PRINT LINES

This test printout shows a pattern of all printable characters. Use this to check if the printer operates correctly. See sample in chapter 1.9 PRINT MENU.

HEX-DUMP

This function allows to analyze the data received by the printer.

- Control codes are no longer executed, instead all data is printed in hexadecimal format and as ASCII characters. Any non-printable characters, such as carriage return are only represented as a single dot (.) in the ASCII list.

- It may happen that the transmission of data to the printer will be interrupted during Hex Dump. In this case, printing of data received after the break is started on the next available line. The result is an irregular right margin which is not an indicator for any loss of data.

4.6.2 Define Macro

Note: The parameters can be accessed via the control panel or via a corresponding Set „Control Code Sequence“ by the application. The settings about the „Control Code Sequence“ appears in the CURRENT SETTINGS column.

SELECT MACRO

- To select one of the four macros which can be used for quickly changing the printer settings for different applications. For example: Application A needs fanfold paper with a top margin of one, application B processes fanfold paper in a batch with a top margin of six. Simply by pressing Macro Selection key  the macro containing the information for the specific application requirements can be activated.en.

PAPER SOURCE

The printer offers three choices for paper source:

- **TRACTOR** (fanfold paper)
- **MANUAL** (single sheet) (optional for printer **PP 803**; and a standard part of the printer **PP 806**)
- **ASF CASSETTES** (optional for printer **PP 806**). They can be accessed either individually or bundled in a pool. Any combination of cassettes can be selected.

Each paper source can be assigned a correction factor for the vertical or horizontal paper position (see section DRUCKPOS.JUST).

Note: For the exact paper specifications, see the chapter Specifications.

PAPER EXIT

It is possible to define **PATH** and **BATCH CAPACITY**. The desired paper exit can be selected via operator panel or software.

PARAMETERS OF PATH

- **BATCH** default for fanfold (all **printers**) and cut sheet (**PP 803** only)
- **MANUAL** is for single sheet or form sets only; with output to the front on top of the Manual Insertion Guide (for **PP 803** optionally and for **PP 806** standard).

Values for **BATCH CAPACITY** are in the range from 0 to 600 pages to stack before a hold (offline) is performed.Default = " " means 0. Range: 20 to 600 in steps of 20 pages.

PRINT POS. ADJ. (vertikale / horizontale Positionierung)

- This function adjusts the print position in the current macro for the different paper paths **TRACT. L.V-POS**, **TRACT. L.H-POS**, **TRACT.U.V-POS**, **TRACT. U.H-POS**, **MANUAL V-POS**, **MANUAL H-POS**, **ASF BIN x V-POS** and **ASF BINx H-POS** (x = 1 up to 3) to exactly position the printout in relation to the top edge of the form in use. It is meant to be a corrective parameter to compensate variations in paper size and pre-printed material.

This parameter covers a range of:

Fanfold vertical:	-24.0 up to +99.9 in steps of 1/6 Inch,
Fanfold horizontal:	- 9.0 up to +24.0 in steps of 1/10 Inch
Manual or bins vertical:	- 1.5 up to +24.0 in steps of 1/6 Inch
Manual or bins horizontal:	- 9.0 up to +24.0 in steps of 1/10 Inch

Note: „**-**" means page up; „**+**" page down.

Caution: The set up of "PRINT.POS.ADJ." will become effective on the next page of the form. Therefore, it is recommended to define "PRINT.POS.ADJ". as long as the paper is in the park position and before starting the print job.

PAGE LENGHT (only for continuous paper)

- Page length is expressed in terms of lines within the range of 1 to 144 lines. Any page length setting is based on six lines per inch, regardless of the number of lines per inch selected in the line setting or defined by the application. The following table shows the number of lines for the most common paper sizes:
-

Page lenght in Inch	Lines per page
4	24
4 1/6	25
6	36
8	48
8 1/2	52
11	66
11 2/3	70
12	72 *

The page length setting is the basis from which perforation skip, TEAR-OFF and margins are calculated. An incorrect page length, therefore, leads to an incorrect perforation skip FORMULARLAENGE (only countinous)

PRINT QUALITY

FONT QUALITY

Four different font quality levels can be selected:

- High Speed Draft (font „Data“)
- Draft quality (font „Data“)
- Near letter quality (NLQ displayed beside the Font name)
- Letter quality (LQ displayed beside the font name). *

GRAPHICS QUAL.

Four different graphics quality levels can be selected:

- Standard 180 Dots per Inch (360 Pkt. Horizontal possible) *

Possible graphics accelerations with output resolution 180 x 180 dpi (driver)

- Win. LQ 180 Dots per Inch
- Win. NLQ 90 Dots per Inch
- WI. Draft 60 Punkte per Inch

BARCODE QUAL

- NLQ *
- LQ

FONT

A font combines characters of the same style and size. The appearance of the font can be changed with attributes such as size, bold, italic etc.

The following fonts are included in the Standard personality module SER / PAR:

- Data
- Roman
- Sans Serif
- Courier
- Prestige
- Script
- OCR B
- OCR A
- Orator-C
- Orator
- DATA LARGE

see also examples of printing in Appendix B.

Note: The Configuration printer test produces a printout of all available fonts..

Barcodes contained in the firmware of the printer and will not be printed. For details on printing the barcode, refer to Appendix F Barcodes Quick Reference.

PITCH

Defines the number of characters printed per inch (10, 12, 15, 17, 18, 20 or proportional).
Any pitch setting can be combined with any available font. In some cases this might lead to a conflict with font designs. The pitch setting is, therefore, a matter of personal taste.

LINE

Determines the number of lines per inch.

EMULATION

The emulation determines the set of commands available for the printer (see **Appendix D** and **E**).
You can activate the following emulations

- EPSON LQ / ESC/P2
- IBM PROPR.
- IBM PROPR. AGM

Note: The selected emulation is also saved in the macro. Changing the macro with the key can cause the emulation to change.
Caution: an emulation should not be changed within an application printing!

CHARACTER SET

The selected character set needs to be further specified by the corresponding national versions on the next level.

Detailed print samples are found in **Appendix B** and the Character Set Tables in **Appendix C**.
If a different macro is selected the default character set may change as well.

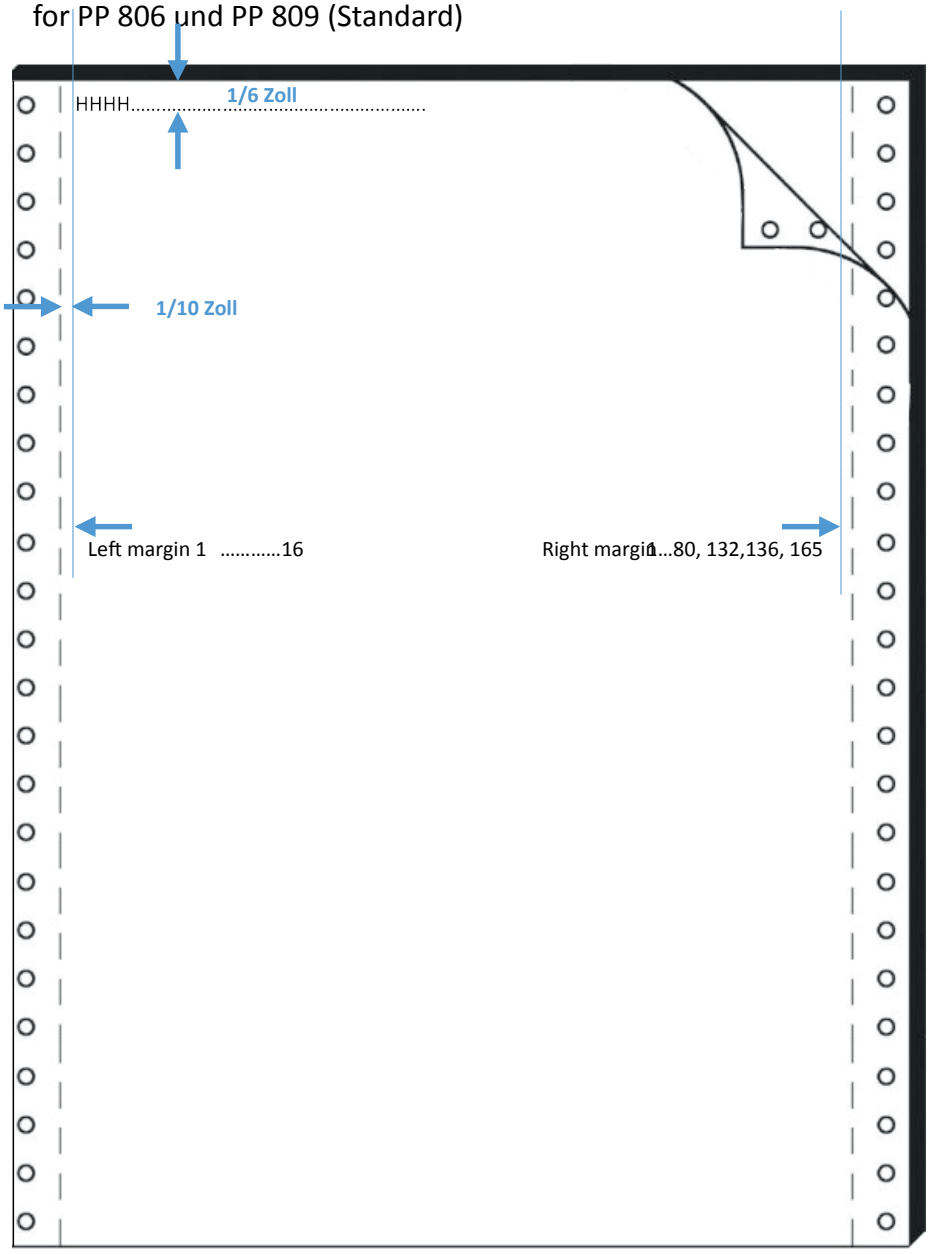
- IBM PROPR.-Emulation with Zeichensatz IBM SET 2.
- EPSON / ESC/P2-Emulation with Zeichensatz EPSON EXT.GCT.

LEFT MARGIN

The left margin is set in steps of $^{1}/_{10}$“. The first left margin position is $^{1}/_{20}$“ from the left edge of the paper which means that the letter **H** in regular „Data“ font would be positioned 1/20“ from the left edge of the paper. The left margin can be set to a maximum of $^{16}/_{10}$“.

RIGHT MARGIN

- 1-80 for all PP 80x
- 94 only for PP 803 (Standard),
- 132 for PP 806 und PP 809,
- 136 for PP 806 und PP 809
- 165 for PP 806 und PP 809 (Standard)



LINE MODE

If **LF = LF + CR** is selected the printer performs a line feed and additionally a carriage return (CR) for every line feed (LF) received via the interface.
If **CR = LF + CR** is selected the printer performs a carriage return and additionally a line feed (LF) for every carriage return (CR) received via the interface.

PERF. SKIP

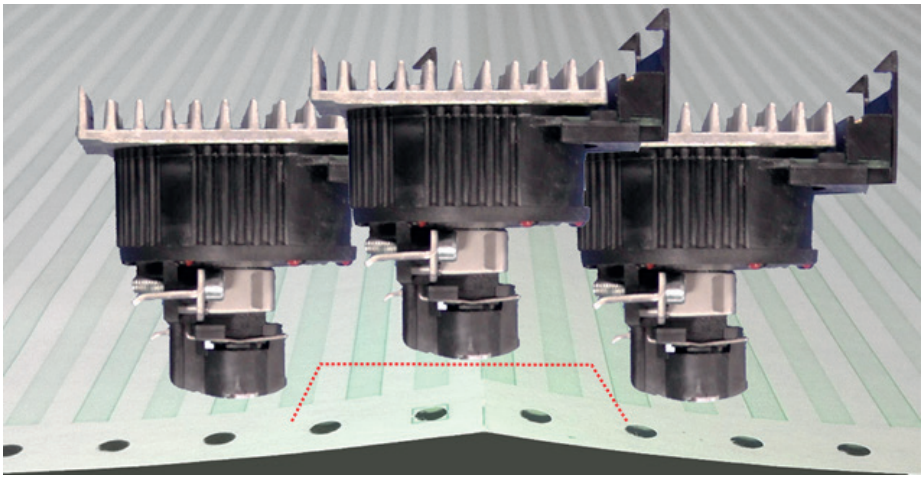
STANDARD FUNCTION:

- If PERF.SPRING = YES is set, the printer will use the upper and lower paper margins set.
- If the setting PERF.SPRUNG = NO, printing is performed across the perforation. A 12-inch form can be printed on all 72 lines with this setting. This setting ignores all values for the top and bottom.

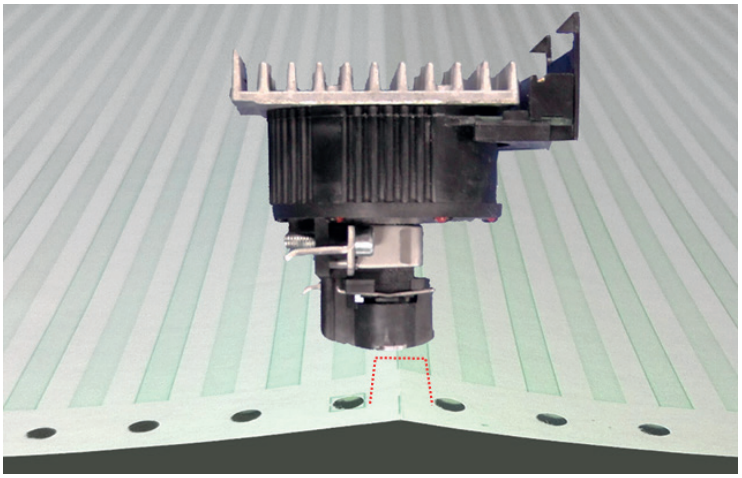
Lifting the printhead up by transition to next page.

To prevent the paper fold from hanging on the ribbon guide, the printhead can be lifted up to the most upper position. For this the menu item PERFORATION SKIP (PERF. SLIP) overlapping can be used.

- If the **PERF.SKIP = YES / OVERLAP** is set, the printer will use the upper and lower margins set and pen the gap for save transportation



- If the **PERF.SKIP = NO/ OVERLAP** is set, the printer open the gap for save transportation by passing perforation



TEAR OFF MODE (only with continuous forms)

There are three settings possible for tear off and four settings for cut mode:
Tear-Off Mode

- NO (default setting)
- TEAR-OFF 10 S. (Tear off after 10 sec. time out)
- TEAR-OFF 1 S (Tear off after 1 sec. time out)

Cut Mode (only if Cut Device is activated)

- CUT 10 S. (cut after 10 sec. time out)
- CUT 1 S. WITH FF (cut after 1 sec. time out If Form Feed is given)
- CUT 1 S. NO FF (cut after 10 sec. time out
- CUT MODE ON

When TEAR-OFF is selected the printer waits for one or ten seconds and, unless further data are received, advances the paper to the first perforation behind the text.
Regardless of this setting, whenever a change from fanfold to another paper source occurs the printer will request the fanfold paper to be torn off before the paper is moved into the park position. Furthermore, all settings can be overruled by software (see command SPSIF).

- The setting **NO** means, that neither automatic feeding into the tear off position no automatic cutting is performed. It is appropriate for batch output of continuous forms.
- The setting **TEAR - OFF 10 S** causes the paper to move into the tear off position if no new printing data have been received within 10 seconds. This setting supports applications which do not close a print job by a form feed. When the page is at the tear-off position and data transfer is continued without having torn-off the page, the form is moved back so that printing can resumed at the last print position. If the page has already been torn off printing will be continued at the top of the next page.
- The setting **TEAR - OFF 1 S** causes the paper to move to the tear off position when the print job has been completed by a form feed command and no new print job has been received within one second. If the paper is not torn off and new printing data are received the paper moves back into the printer and printing is continued at the first line of the following page.

In case of setting **CUT DEVICE = YES**, the printer will always cut the paper when a switch from one tractor to the other has been initiated.

- The setting **CUT 10 S** causes the form to be cut if no further printing data have been received within a print job for a period of 10 seconds. After cutting, the paper moves immediately into the top of form position of the next page. This setting supports applications lacking a programmed form feed after completion of a print job.
- The setting **CUT 1 S** causes the form to be cut if, after a **form feed command**, no further printing data have been received within a print job for a period of 1 second. After cutting, the paper moves immediately into the top of form position of the next page.
- The setting **CUT 1 S NO FF** has the same function as CUT 1 S but is
- **Independent of receiving of a form feed command.**
- By the function **CUT MODE ON** the printer will cut continuous forms into single sheets and feed them to the rear.

Note: The application has to control page length. The page length must be at least three inch, otherwise the printer is unable to throughout the sheet.

$$ EMULATION

If $$ EMULATION = YES, a control code in ASCII format can be sent to the printer. The printer then interprets a $$ as ESC (HEX = 1B).

$$ = Control String Introducer for ESC [= CSI = HEX 1B 5B

$$ / = Control String Introducer for ESC = HEX

Example:

Select lower tractor

ESC [7 s

Hex:	1B	5B	37	73
Dec:	27	91	55	115
$$:	$$	7	s	

Select Font Courier

ESC k n

Hex:	1B	68	31
Dec:	27	104	49
$$:	$$	\	k

4.6.3 INSTALLATION

INTERFACE

I/O TYP

The following types are available

- Parallel / RS232
- Parallel / RS422
- Parallel

In case the **PARALLEL / RS232** or **PARALLEL / RS422** interface type is selected the printer switches automatically between the parallel and serial interface. The first data received at the port determine which interface port becomes active. The other interface port will be closed so that only one interface is active at a time (for detailed information see Appendix **A Interface Description).**

The factory settings for the interface type are: PARALL./RS232, 8 bit word length, 9600 baud rate, even parity bit, DTR protocol, ignore DSR+CTS, and 64 Kbyte Buffer.

WORD LENGTH (Only indicated if the serial interface is selected)
Number of bits that represent a word; values are 7 or 8 bit

BAUD RATE (Only indicated if the serial interface is selected) Controls the speed of data transfer. Possible transfer rates are: 600, 1200, 2400, 4800, 9600, 19200 or 38400 bps.

PARITY BIT (Only indicated if the serial interface is selected)
The data transfer will be checked by an even or odd parity bit. The values are: **EVEN**, **ODD**, or **NONE**.

PROTOCOL (Only indicated if the serial interface is selected)
Selectable are: **DTR**, **XON/XOFF**, or **XON/XOFF+DTR**.

Note: The setting switches automatically from DTR to XON/XOFF if I/F Type RS422 is selected.

Buffer
Buffer size in KByte; the max. size is 64 KByte.

DSR/CTS MODE (Only indicated if the serial interface is selected)
Selectable are:

- IGNORE DSR+CTS,
- DSR+CTS ACTIVE,
- CTS ACTIVE
- DSR ACTIVE

CUTTING DEVICE

The cutting unit is an option. To ACTIVATE the cutter, the default NO setting must be changed to YES. YES Special should be used on very narrow paper for a clean cut. If the cutter is ACTIVE, the cutting functions can be used in the macro under the item TEAR-OFF MODE

- CUT 10 S. (automatic CUT after „timeout“ with FF)
- CUT 1 S (automatic CUT afterh „timeout“ with FF)
- CUT 1 S (automatic CUT after „timeout“ without FF)
- CUT EIN

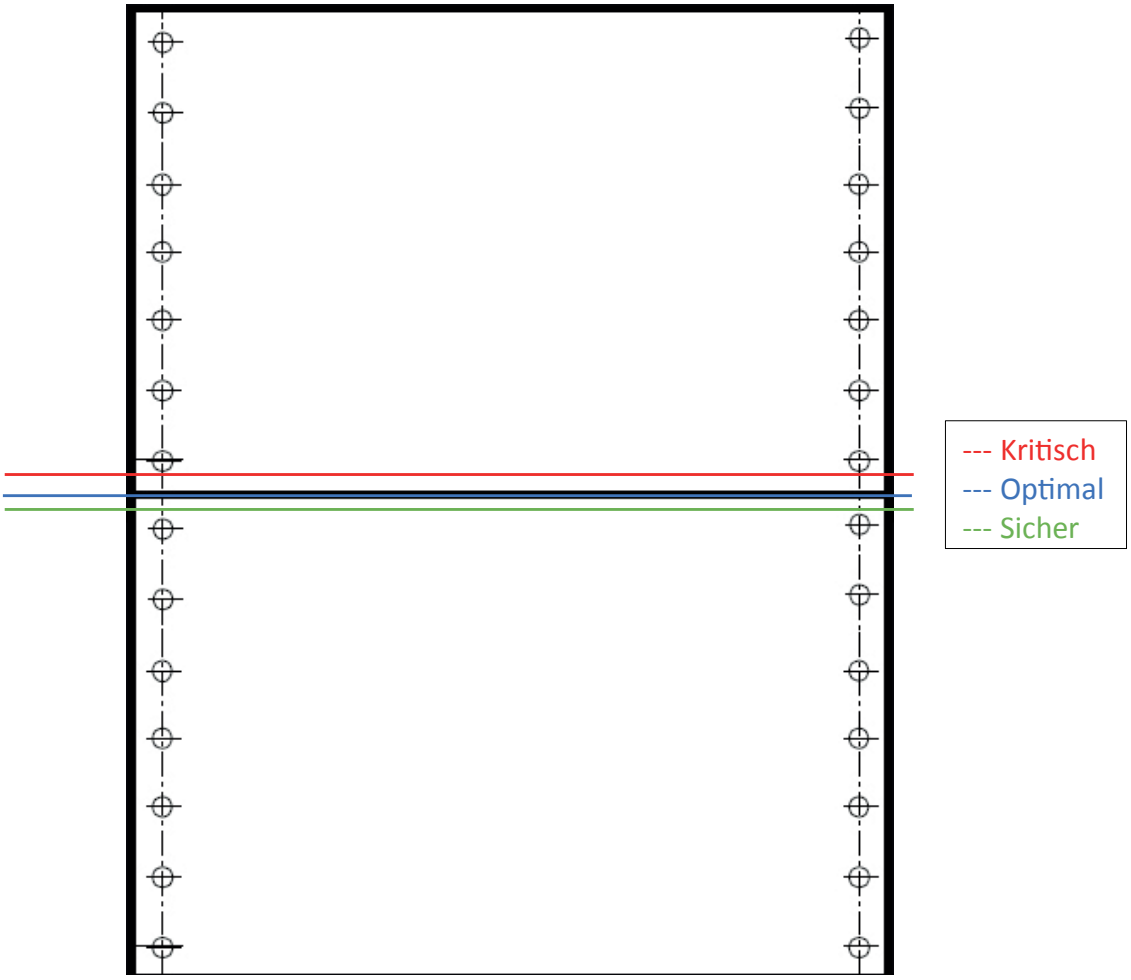
CUT VPOS. (only displayed if CUTTER DEVICE = YES)

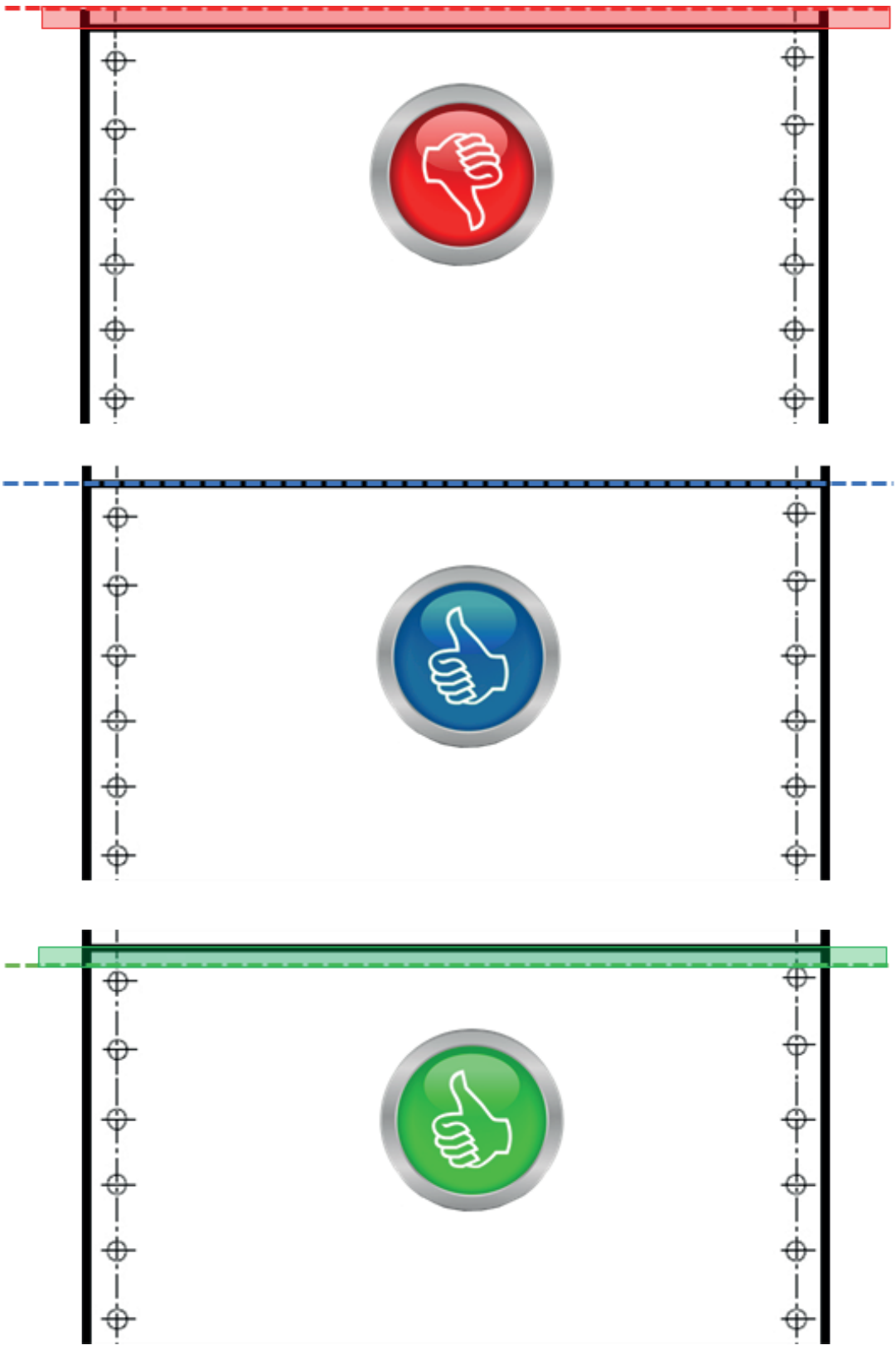
CUT. V-POS LO. / CUT. V-POS UP. (Only displayed if Cut Device = YES) (Vertical adjustment of cut position) This can be set differently for each paper source (lower and upper tractor) and is meant to be a corrective parameter to meet variations in paper size and pre-printed material. The parameter covers a range of- $^{8}/_{60}$ „ to + $^{8}/_{60}$ „.If, for some reason, it is not desired to cut exactly on the perforation it is very important to cut below the perforation of the printed page. If the paper is cut above the perforation the remaining paper can easily bend and cause a paper jam. Do not cut through a label as the blade would get dirty by the glue.
The following table shows the possible values in inch and millimeters.

+/- 1 = +/- $^{1}/_{60}$“ = +/- 0,42 mm	+/- 5 = +/- $^{5}/_{60}$ „ = +/- 2,12 mm
+/- 2 = +/- $^{2}/_{60}$ „ = +/- 0,85 mm	+/- 6 = +/- $^{6}/_{60}$ „ = +/- 2,54 mm
+/- 3 = +/- $^{3}/_{60}$ „ = +/- 1,27 mm	+/- 7 = +/- $^{7}/_{60}$ „ = +/- 2,96 mm
+/- 4 = +/- $^{4}/_{60}$ „ = +/- 1,69 mm	+/- 8 = +/- $^{8}/_{60}$ „ = +/- 3,39 mm

A higher value shift the paper up and such the cut position further down the page. When you reduce the value the cut position is moved up the page.

Note: The cutting V-POS must be set so that the cut exactly at the perforation or in the area located up to 0.5 mm below the perforation. This avoids that a can by cutting remaining side rest before perforation, twisting as it feeds and lead to paper jam. When cutting of adhesive labels a cut should be avoided by the label. The cutter contaminated with adhesive glue.e.





AGC POSITION

AGC (**A**utomatic **G**ap **C**ontrol) is an integral part of the paper handling capabilities of the printer. It is an automatic adjustment function which ensures usage of various paper thicknesses at always optimal print quality. The gap adjustment will automatically take place whenever paper is inserted

- After the paper source has been changed
- From park position
- After Power On
- After the printer has been in the STOP mode
- An AGC command has been issued.
- Manual insertion

The reference point for the measurement of the paper thickness is the **AGC Position** of the first print line. Default for the horizontal AGC Position is **24**, any position from 4 up to 82 (for printer **PP 803**) or 4 to 131 (for the printers **PP 806** and **PP 809**) in steps of 10 cpi can be selected.

An adjustment of the AGC Position is only necessary if a measurement at the default position does not reflect the paper thickness of the area to be printed on or if there is a paper edge (e.g. of a label) in that position (the measuring process requires a plain paper-surface).

In addition to the automatic AGC function, measurements of the paper thickness at various positions can be executed by the AGC command, or a specific platen gap can be set using the PCC command. This is to meet the requirements of forms with complex properties. For details see Appendix **D** and **E Quick Reference**.

LANGUAGE

The operator panel may display its messages in three languages. Select one out of the following: **ENGLISH**, **GERMAN**, or **FRANCAIS**.

RECALL FACTORY

All standard default settings of the firmware will be restored. The contents of Page Counter and the Paper-in Adjust will not be changed. Use the function SAVE MENU if the standard settings shall be stored permanently.

PROGRAMM UPDATE

A new firmware version can be down loaded from the host system via the interface cable. All parameters will be reset to their factory default value.

MENU ACCESS

The access range for selecting and setting menu functions can be set in three categories with MENU ACCESS

5. Preventive Maintenance and Care

Preferred Material

The following materials and cleaning lubricants are recommended when maintaining the printer:

- Lint-free cloth
- Vacuum cleaner

5.1 Preventive measures

The user should clean the printer every six months or after 50,000 prints, whatever occurs first. If you experience paper feed problems or if the print head carriage movement is hampered, cleaning should be carried out more often.

Note: The Page Counter (PGCNT) in the CONFIGURATION printout will inform about the actual number of printed pages (see illustration on the next page).

HW-AUSBAU

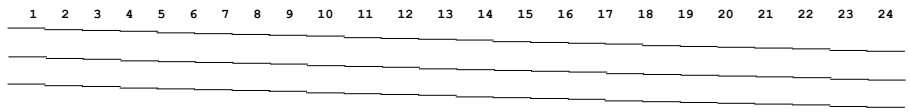
CONFIGURATION	FW-VERSION	202xxxxx	PAGE COUNT	12645

C031 ISO 8859/1 C032 ISO 8859/15 C061 IBM SET 1
C062 IBM SET 2 C063 IBM CODE PAGE C071 EPSON EXT. GCT
C100 CODE PAGE EE C101 CODE PAGE EE2

DATA		ROMAN	NLQ	ROMAN	LQ
SANS SERIF	NLQ	SANS SERIF	LQ	COURIER	NLQ
COURIER	LQ	PRESTIGE	NLQ	PRESTIGE	LQ
SCRIPT	NLQ	SCRIPT	NQ	OCR B	LQ
OCR A	LQ	ORATOR-C	NLQ	ORATOR-C	LQ
ORATOR	NLQ	ORATOR	LQ	DATA LARGE	LQ

ZEICHENSATZ : EPSON EXT. GCT 1: U.S.A.

PRINTHEAD NEEDLE

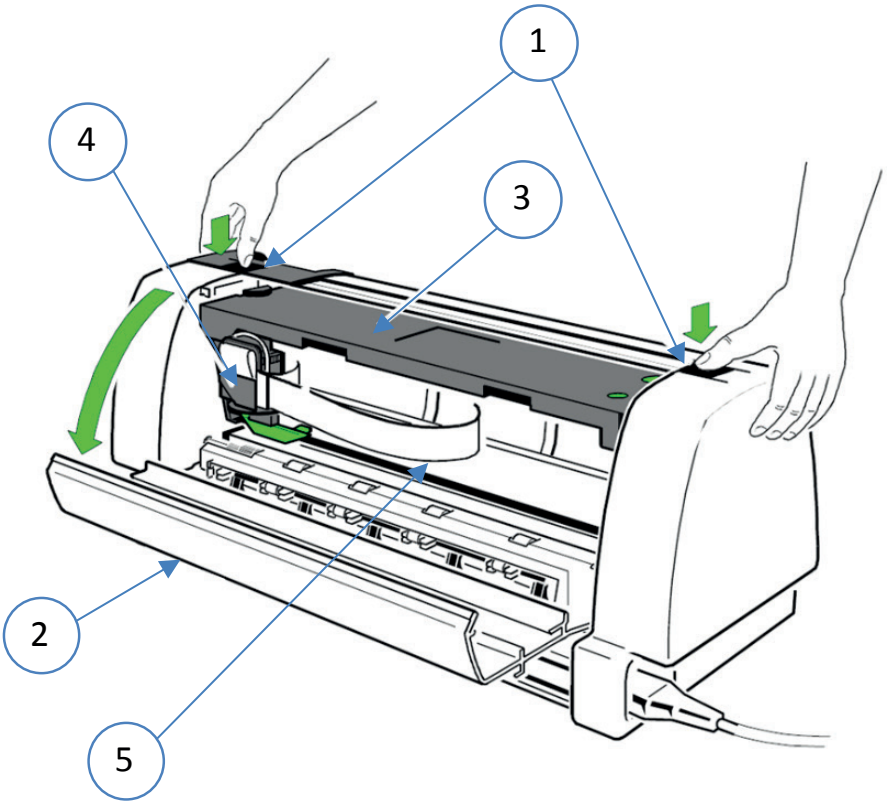


DATA DRAFT

$!"#$%&'()+,-./01234567890:;<=>?@ABCDEF.....

5.2 Cleaning Procedure

- Power on the printer
- Open the rear cover:
- Press the Key  to enter in the LOCAL mode.
- Press the left and right unlocking buttons (1) simultaneously and open the rear cover (2).
- swievel the rear cover (2) down

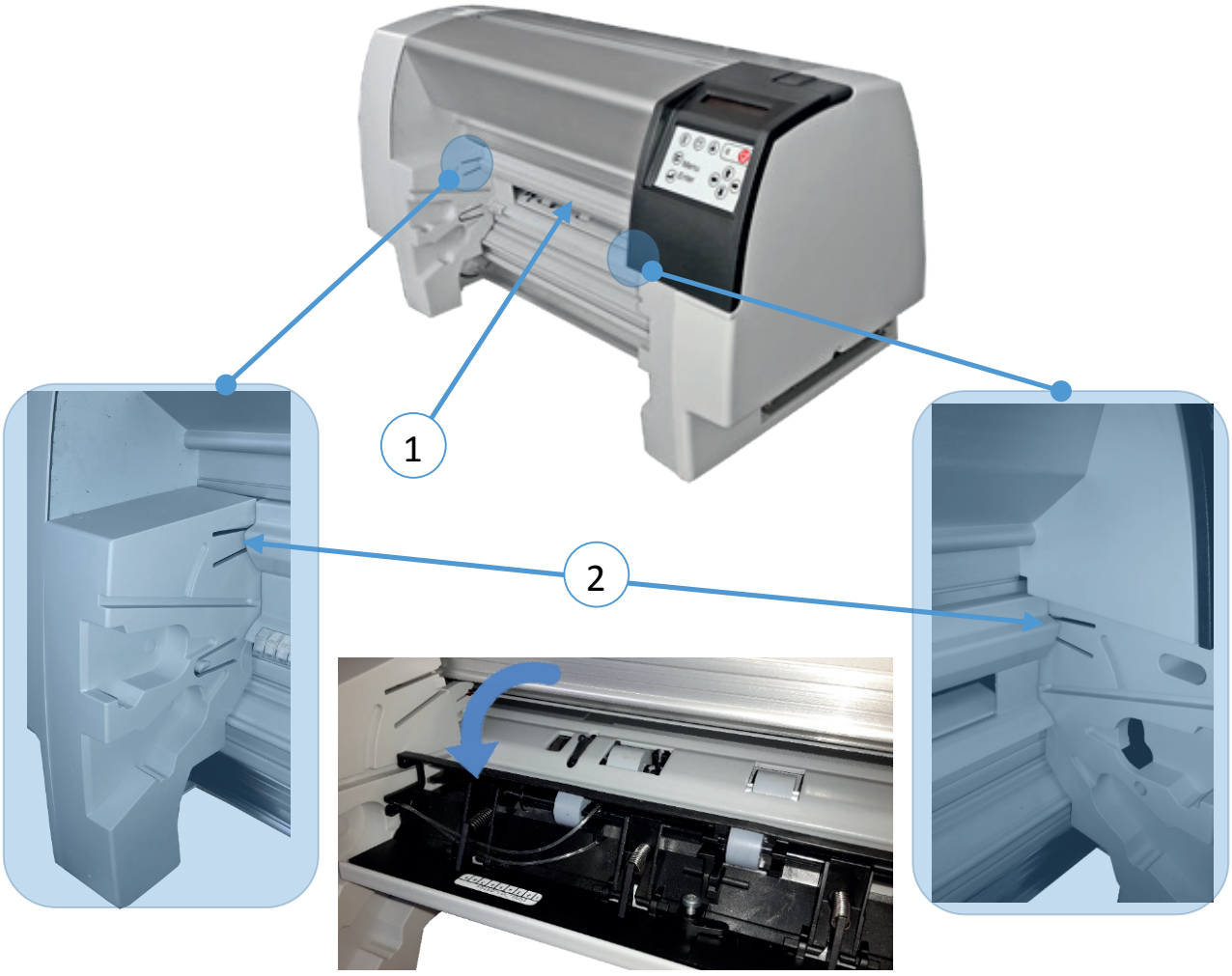


1. Unlocking buttons
2. Rear cover
3. Ribbon Cassette
4. Print Head in Park position
5. Print bar

- Remove Ribbon cassette
- Power offprinter
- Thoroughly brush and vacuum all accessible ranges to remove paper debris and dust.

Open the front cover of the printer:

- Remove the Manual Sheet Feeder (an option for PP 803; not applicable for PP 809), Tractor Cassettes, and the Paper Guide (only for printer PP 806 and PP 809).
- Press the left and right plastic leads (2) and open the front cover (1).



- Clean the paper pressure rollers and the transport rollers.
- Clean the covers and the operator panel with a damp, lint-free cloth.
- Do not use cleaning solvents or excessive amounts of water.
- Insert the ribbon cassette (see chapter **1.6 Ribbon Installation**).
- Close the front and rear cover.

The printer automatically locks the ribbon and cover and changes to **READY** mode.

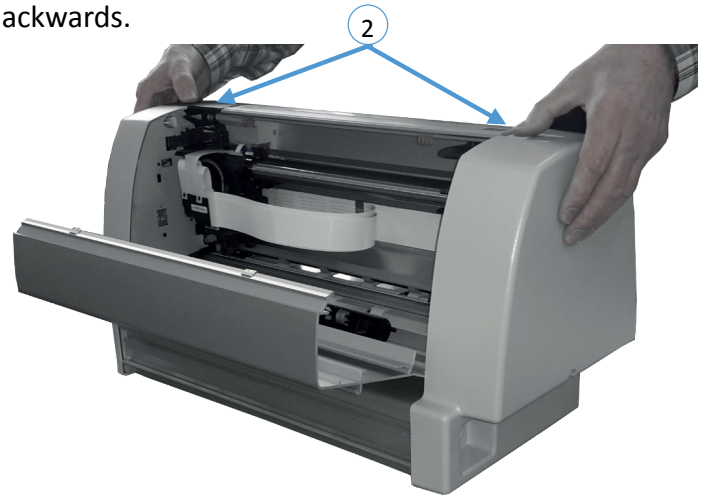
5.3 Printhead Exchange

The life time of the print head is specified being 600 Mio. Strokes per needle.

Remove Printhead

Note: The print head may be very hot immediately after printing.

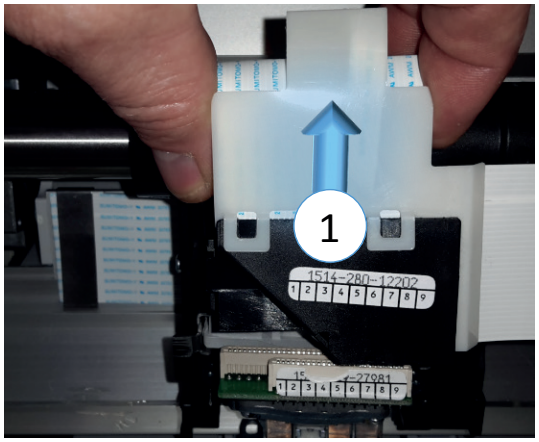
- Power on printe
- Release the rear cover (2) by pressing simultaneously the two locking Buttons and swivel the rear cover backwards.

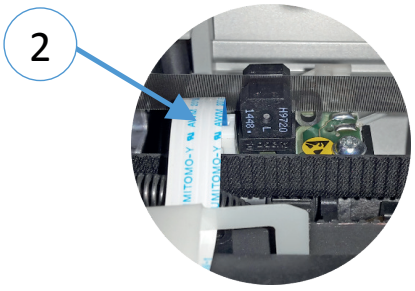


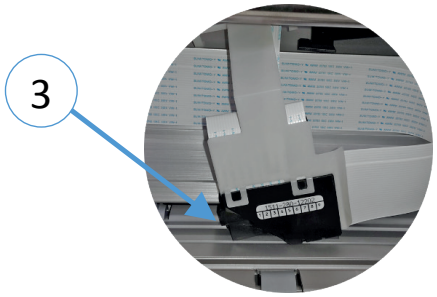
Press  The print head will automaticly unlocked

DK UNLOCK (***Note:*** **DK** means Print head) will displayed.

- Remove ribbon cassette
- Power off printer.
- Disconnect the print head cable (1) carefully by pulling the black plastic holder (2) upwards.
- pull out the H-Encoderable (2)
- Put the printhead cable aside (3)

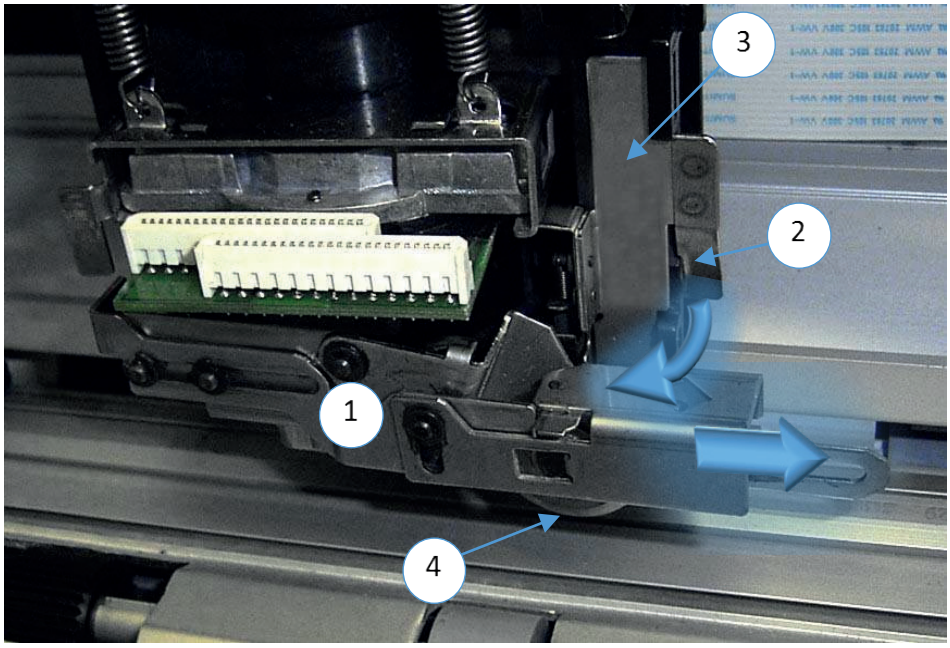




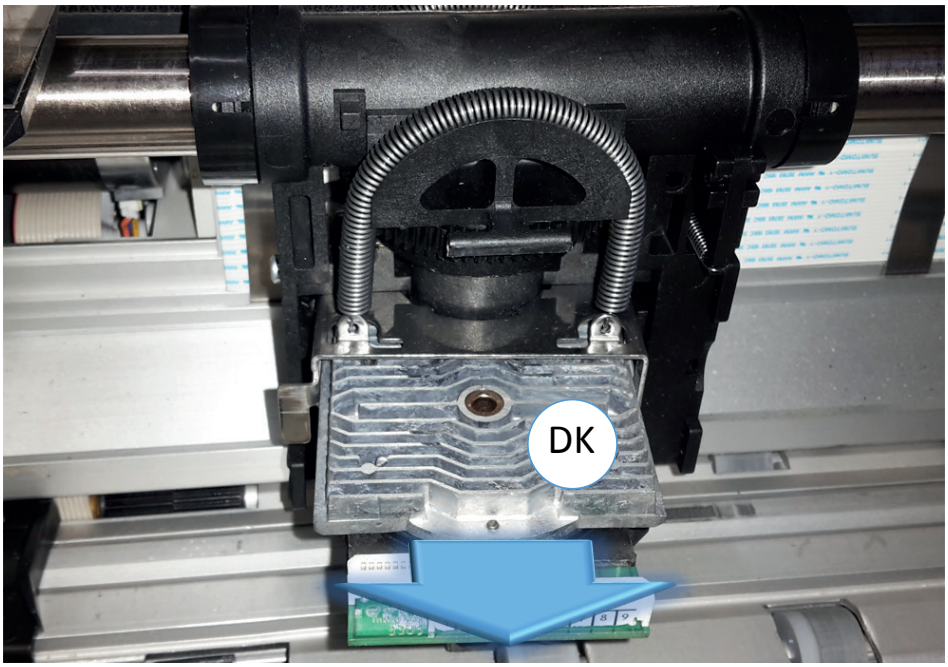


Only for printer with built-in cutter (1)

Pull the clip (2) slightly forward. Press the cutter (3) to the left, the cutter jumps out of the holder. Pull the cutter (1) slightly forward on the clip holder (3) and remove to the right.

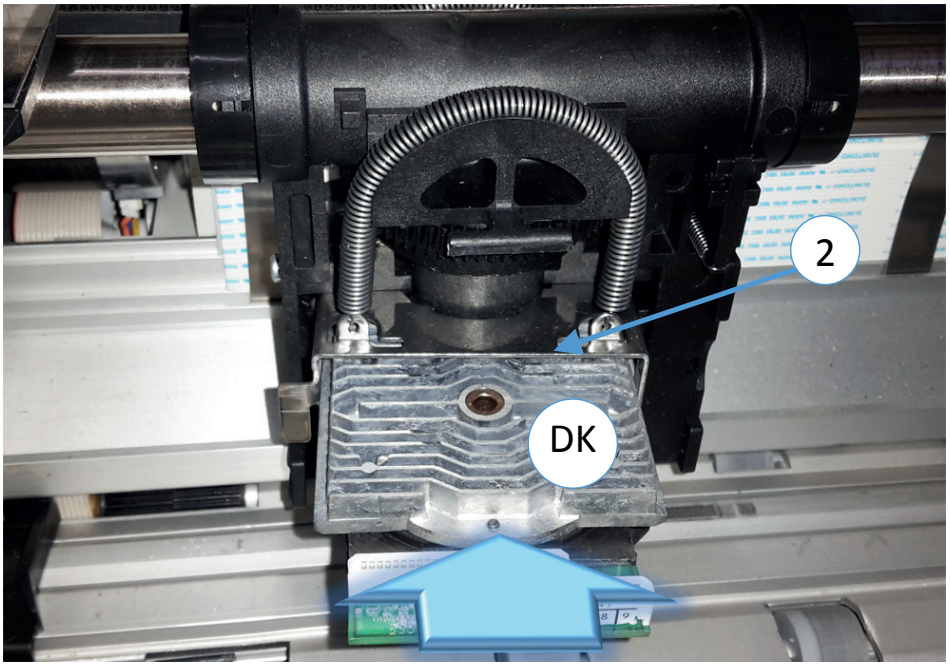


Note: The cutting wheel (4) is very sharp (Attention risk of injury) Pull the printhead (DK) forward out of the holder.



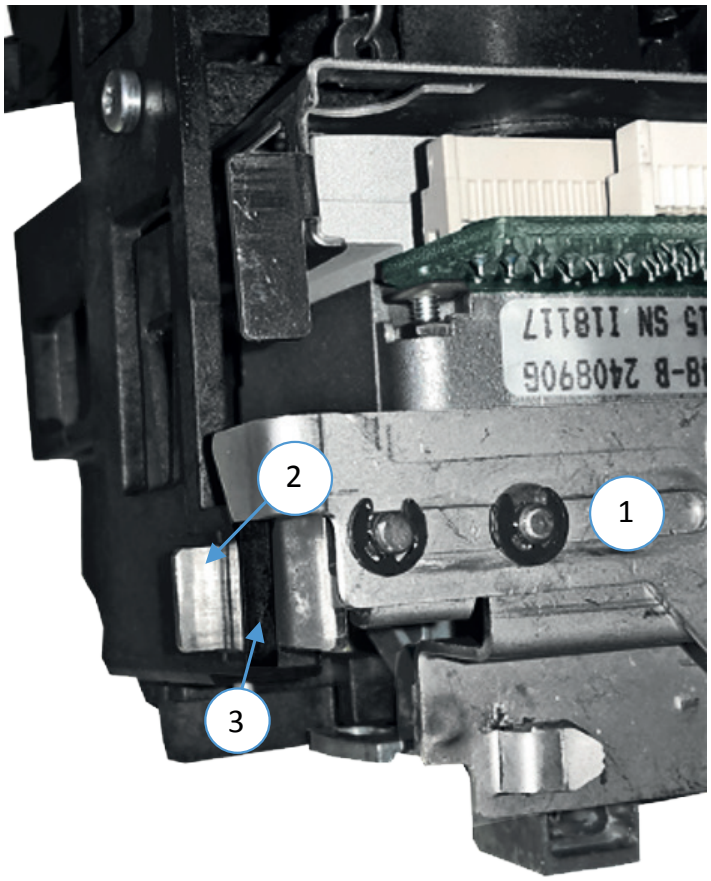
Printhead install

The new print head (DK) is pushed into the holder (2).



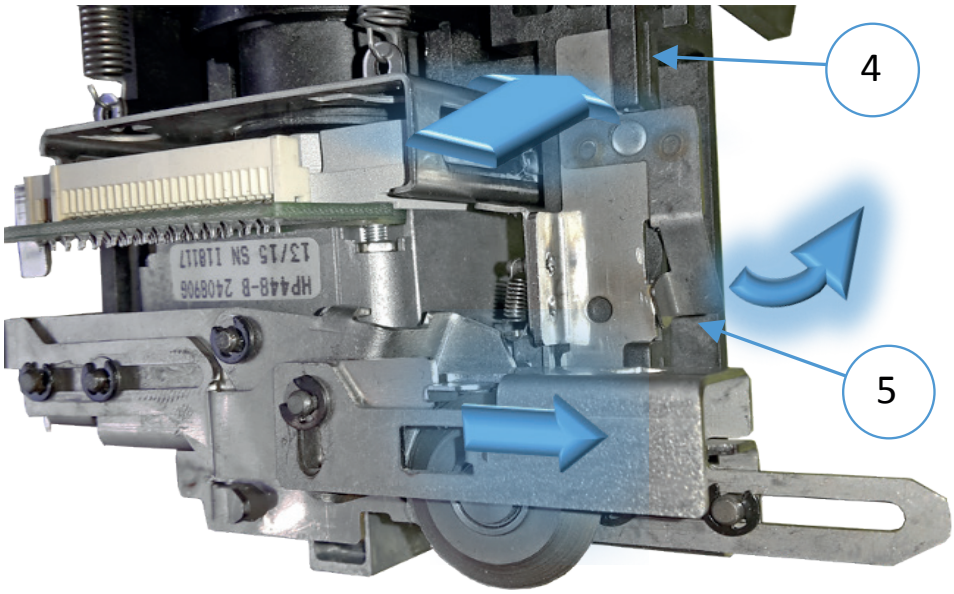
Insert Cutting Device

Slide the angle (2) of the cutter (1) to the left in the plastic bottle (3) of the carriage,



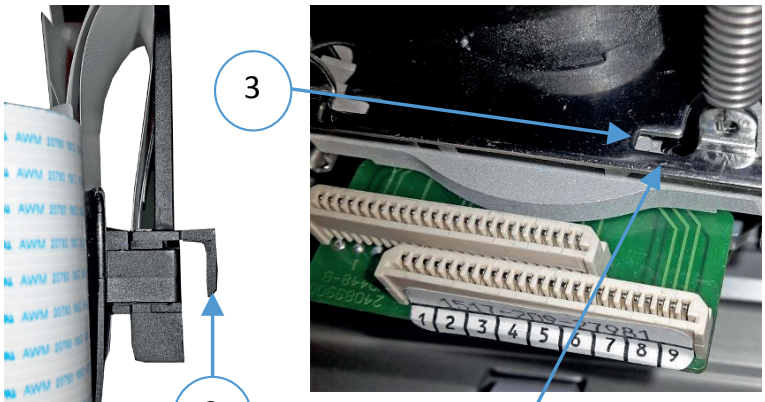
Then slide it to the right into the plastic holder (4) of the carriage and push the flap (5) to the right.

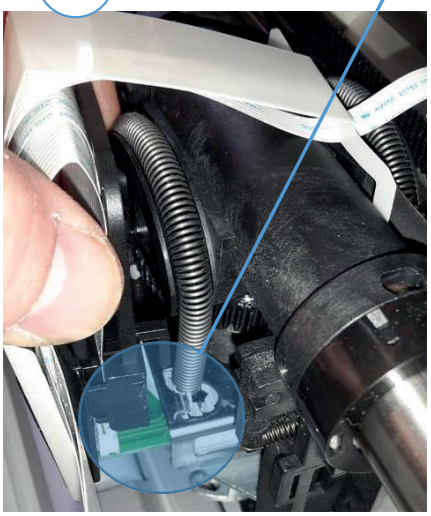
Note: Do not over-bend the clip (5).

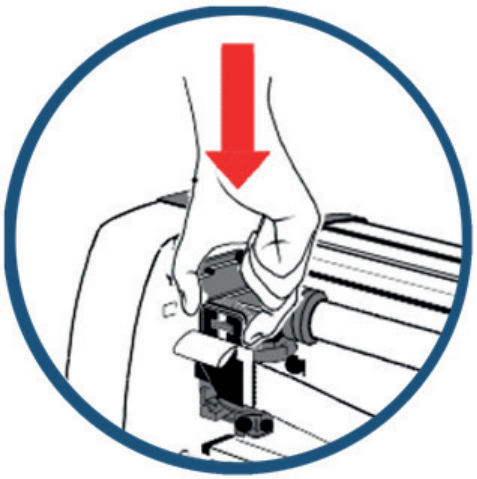


Plug printhead cable

The plastic hook (2) must be inserted into the opening (3) of the printhead carriage. Then the printhead cable should connected to the connector. On the plastic holder, a strong pressure must be applied.

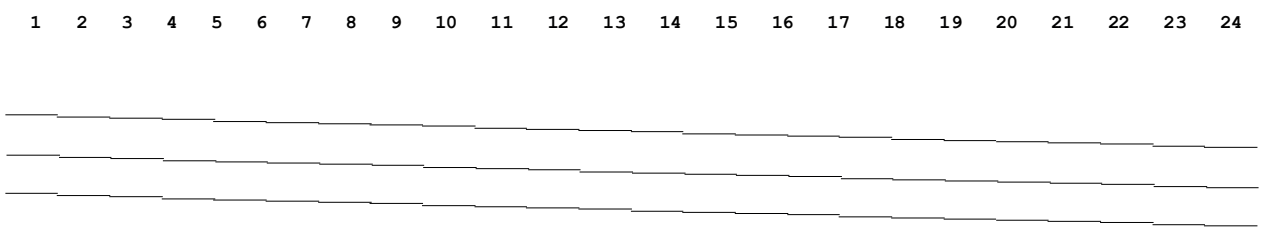






- Insert ribbon cassette
- Close rear cover
- Turn on the printer. The ribbon and printhead are locked automatically.
- A test page should be printed immediately thereafter to ensure that the printhead cable is properly inserted. It is advisable to print the test expansion CONFIGURATION, because there the needle staircase is shown..

KEY SYMBOL	NAME	DISPLAY	INFO
	[STOP}	LOCAL 1 ELQ	
	[MENU]	TEST MODE ⇨	
	[RIGHT]	⇦ PRINT MENU	
	[DOWN]	⇦ CONFIGURATION	
	[ENTER]	MENUE DRUCKEN	
	[ONLINE]		
	[FORM FEED]	⇦ PRINT MENU [PAPER TEAR OFF]	(s short displaed)
	[STOP}	LOCAL 1 ELQ	
	[START]	READY 1 ELQ	



Note: If it doesn't work power OFF and open the printer again. Press print head cable and its connector once more together. Close and power ON the printer and repeat the test printout.

6. Troubleshooting and Diagnostic

How to Use This Section

Find the category to which your problem belongs. The problem categories are:

- Power-related Problems
- Error Messages
- No Printout
- Operation-related Problems
- Print-related Problems
- Ribbon or Carriage-related Problems

For example, if the print appears very light on the paper, look into Section „**Print- related Problems**".

Find the symptom description that most closely matches the printer symptom. In this example you would look at the symptom „**Print faint or of poor quality.**"

- Try the first suggestion under that head line.
- If the suggestion does not cure the problem try the next suggestion.
- If none of the suggestions enables you to continue printing or if the fault is not listed contact your service office.

Each time the printer is switched ON the display indicates TEST while the internal self-tests are run. If the test is completed successfully **READY 1 ELQ** will be displayed. If an error message is displayed please refer to the following section.

Power related Problems

Power indicator does not light when power is switched ON:

- Check that the power cord and plug are securely fitted to the printer and to a mains outlet.
- Ask for the power connector connections (and fuse) to be verified.
- Ask for the building electrical supply to be verified.
- PM correctly inserted?

6.1 Error messages

After switching the power ON the printer runs a self test. During the test the following messages may show up on the display

ERROR	MEANING	REASON/ACTION
No information, POWER ON LED not lit	No power or	• Mains cable not connected. • PM not installed • PM not properly installed
LED lit but no reaction	Hang up in reset after power on	• Print PSU defective • Print CU-DEV defective

When all tests have been completed successfully, the following message appears:

STATUS	MEANING	INFO
READY 1 ELQ or **ACTIVE 1 ELQ**	The printer is ok.	Printer is ready for operation

During normal operation the following error messages may occur:

Note: In an error case the printer changes into the OFFLINE mode. After error correction press  key to change back again into the READY mode.

If an error correction is not possible call your service agent!

ERROR	MEANING	REASON/ACTION
CHECK TOF POS	The perforation of the continuous paper is not in the area of the tear-off edge.	Pull the paper forwards or backwards so that the perforation is flush with the tear-off edge.
COVER OPEN	Rear cover not closed	Close rear cover
E-FAN ERROR	Fault of the fan for the cooling of the electronics	Press  if error stay informed, service
M-FAN ERROR	Fault of the fan for the cooling of the Horizantal motor	Press  if error stay informed, service
FRAMING ERROR	Protocol error serial interface	Check protocol setting of printer and host
UNLOCK PRINTHEAD	Printhead should be unlock	open rear cover. Press 
PRINTHEAD UNLOCKED	Printhead is unlocked	Close rear cover.
LOCK PRINTHEAD	Locking procedure is started	ait!
PRINTHEAD UNLOCKED - COVER OPEN-	Printhead is not locked	Close rear cover.
UNLOCK RIBBON	Ribbon cassette should be unlocked	Open rear coverl Ribbon cassette unlocks automatically

ERROR	MEANING	REASON/ACTION
RIBBON UNLOCKED	ibbon is unlocked	Change ribbon cassette or can be removed.Close the back
LOCK RIBBON	Ribbon cassette is unlocked and free should belocked	Close rear cover for locking ribbon
RIBBON UNLOCKED – CHECK RIBBON.....	The ribbon cartridge is not in the correct position or missing.	• Insert a ribbon • Check ribbon that proper installed • Check the position of the printhead (the parking position is on the far right)
RIBBON UNLOCKED – RIBBON ERROR.....	Ribbon problem. Green ribbon guide is not in the right position.	• Place Printhead in parkposition • Install ribbon again • Place green guide in holder of the ribbon cassette • Close rear cover
RIBBON UNLOCKED - GAP ERROR	• Print gap incorrect, • green ribbon guide not in right position. • AGC Wert falsch.	• Distance between printhead and print bar is faulty • Horizontal drive without function. • snap the green ribbon guide into the side holder • Pns damaged at the green ribbon guide • Clear paper path • Close rear cover • AGC sensor defective
RIBBON UNLOCKED - COVER OPEN	• Locking procedure disturbed. • cover not closed correctly	• Check ribbon • Close rear cover • Check the position of the printhead (the parking position is on the far right)
LOCKED....	Menu access active	Inform system administrators
HORIZ. ERROR	Horizontal drive without function.	• Pressure gap faulty • Blocked horizontal drive or faulty horizontal drive, defective • AGC / PCC value too low • AGC sensor defective • CU-DEV electronics faulty • Encode rule is missing or defect; check! • Remove paper jam • Switch printer off and on again

ERROR	MEANING	REASON/ACTION
PAPER JAM BIN (PP 806) PAPER JAM MAN.	Error in the paper path	• remove paper • Remove any obstacles • Close front cover
PAPER JAM TRF	• Tractor cassette: • Feeding incorrect • No paper feeding • Not enough feeding • Too much feeding by tearing off After power on: • No paper inserted	• Check paper path • Correct paper position? • Paper movement wrong • Close front cover • Insert paper See also diagram Paper Jam TRF
REMOVE PAPER	• Paper sensor covers or front cover is not properly closed	• Remove paper • open front cover and close it propably
PARITY ERROR	Protocol error serial port	Check protocol setting of printer and host Repeat data transfer
PRINTHEAD ERR. nn	Error of print head	• Check ribbon run • Unlock print head and lock again • Pins on the ribbon carriage are damaged; Print Head Error 17 = LQ / DQ switching error please contact Service
PROCESS TIMEOUT Systen Error	Firmware Error	Press  • Switch printer off and on again if error persists, inform service
BUFFER OVERFLOW	Error in Handshake- Protocol.	• CTR - CTS , XON - XOFF • Check Serial Protocol

6.2 No printout

Self-test printout does not start

- Make sure that you have closed the cover.
- Check if paper is loaded in the printer.

6.3 Printout does not start

- Make sure that the READY or BUSY message is displayed. If there is a different message displayed please look into the above error message table.
- Make sure that the printer is connected to the host computer.
- Make sure that connectors are properly fixed at both ends.
- Make sure that the printer is receiving data from the host computer.
- Make sure that the correct protocol is enabled. (Refer to page and appendix A Interface Description).

- Make sure that you have selected the correct port (if the shared mode has not been selected).
- Make sure that paper is loaded.
- Make sure that the ribbon is installed.
- Examine the ribbon path.The ribbon feed guides are not in the right position (see Ribbon Installation)
-

Fanfold paper does not advance

- Make sure that the right paper tractor is selected.

Single sheet paper does not advance (only PP 803 or PP 806)

- Make sure that the paper source MANUAL (an option for PP 803) or BIN x (x = 1 up to 3) is selected.

Note: Bins are only for printer PP 806

6.4 Operation related problems

Paper is not positioned at perforation for tear-off

- Select the correct form length using the Set-up feature.
- Reset top of form by moving the paper into park position.

Paper tears or jams

- Examine the paper path; remove any obstacles Is the paper too loose or too tight between the tractors? If the transport holes are deformed at their outer edges, the paper is too taut. If the paper rises between the tractors it is too loose.
- Readjust the tractor spacing so that the paper lies smoothly but without any tension.
- Ensure that the paper is horizontally aligned on the pins.
- Paper moves out of one tractor

Press 

Press  o check that paper in parkposition

Press  The print starts on next top of form

Print head carriage does not move smoothly / does not move at all

- Examine the paper path. Remove any obstacles.
- Examine the carriage area for obstacles. Remove where necessary.
- Press  the when the paper path is cleared.
- Make sure that the transport lock has been removed.

Single sheets are skewed (only PP 803 or PP 806)

- Adjust ASF cassette paper guides (only printer PP 806). You will find more information in chapter 7.2 ASF Cassette.
- Adjust manual paper insertion (option for PP 803)

- Do you use the right paper? See Chapter 9 Technical Data which contains the paper specification. Change the paper if it does not comply to this specification.
- Does the ribbon need to be changed? Replace it by a new one if necessary.
- Is the ribbon cassette properly installed?
- Ribbon path not o.k?
- Print gap incorrect. Press  twice.
- Copies not dark enough. Don´t use old action paper!

Characters are not printed evenly or are not uniform in pitch

- Examine the paper path for dirt or other obstacles that may cause the gap between print head and platen to vary. Remove the obstacles.

Print lines overlap

- Examine the paper path for dirt or other obstacles. Remove the obstacles.

Part of printed text is missing (loss of data)

- If you are using Serial communication channel check the buffer control setting in Set-up.
- Check the data flow control setting on the host computer.

SELECT	RESULT	CHECK
Select and start PRINT TEST 1	No print image or printout not complete	• FWrong selected paper source • Ribbon empty or missing • Print head over live time or broken
Stop SELF TEST and start external printing	Print does not start	• Set printer to online • Host connection wrong • Wrong Interface setting
	Some character are not correct	• Emulation • Characterset • Code page • Word lenght • Baud-Rate • Parity • Protokol
	Font r Pitch not correct	• Font • Pitch • Line mode
	tProblem ill exist?	call service

6.6 Ribbon or carriage related problems

Ribbon Problems

Make sure that the ribbon is:

- Properly tight
- Not worn out or dry
- Not torn or damaged in any other way
- Not jammed
- Ribbon turned over?

Carriage does not move smoothly.

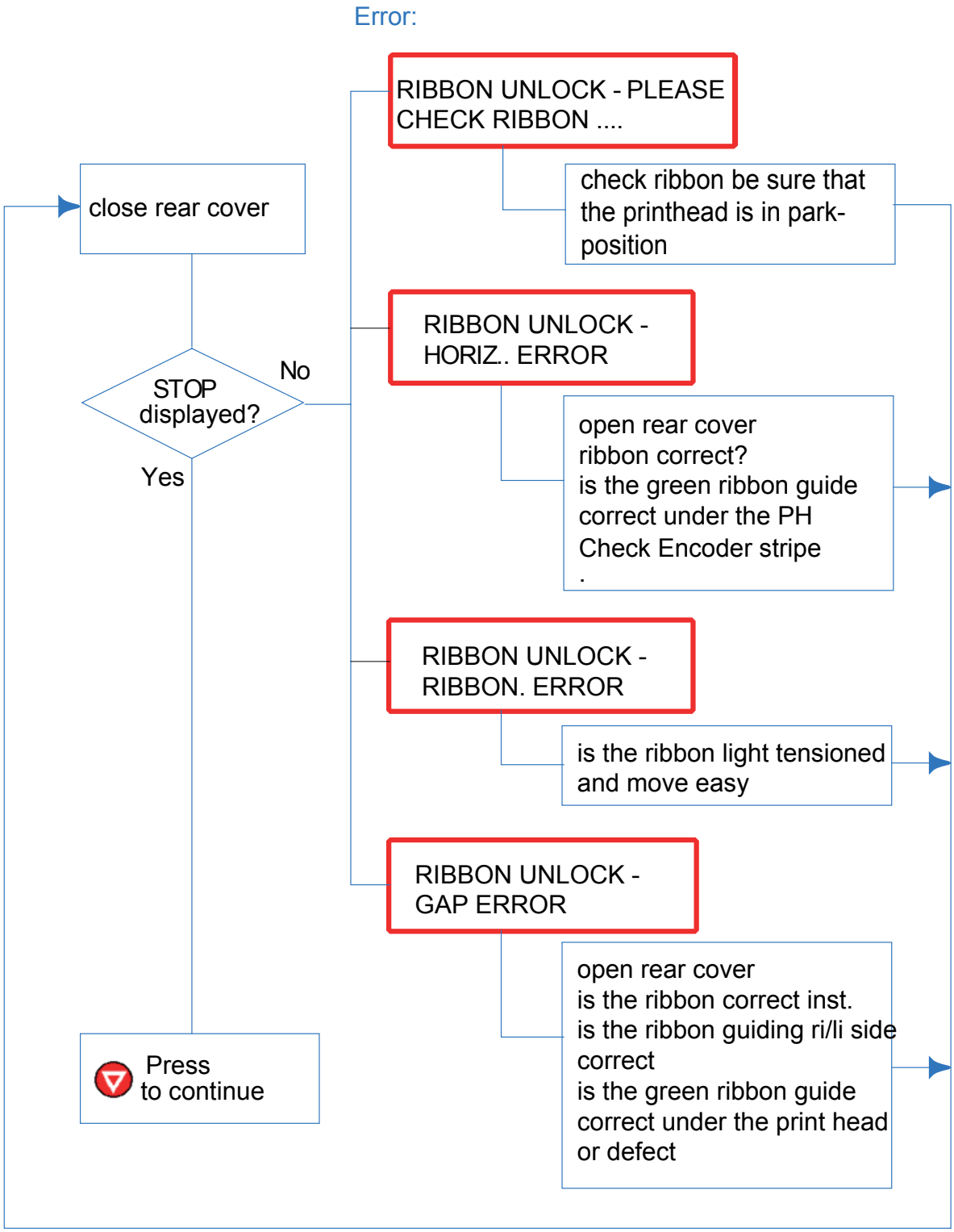
Examine the paper path. Remove any obstacles.

Check that all packing material is removed. Examine the carriage area for obstacles. Remove where necessary.

6.7 Process diagrams for troubleshooting

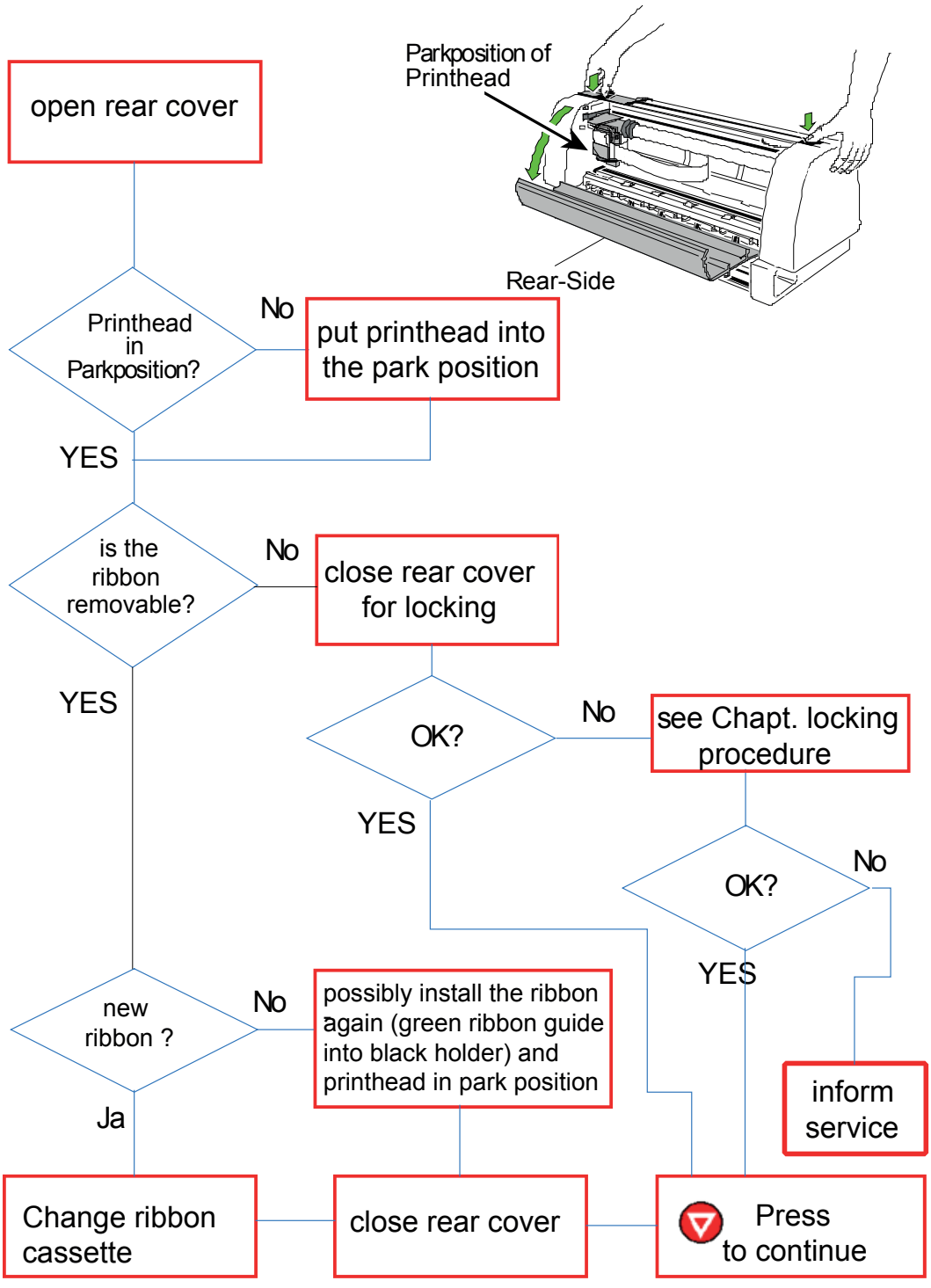
6.7.1 Locking error

The locking procedure is used whenever the top cover of the printer was open



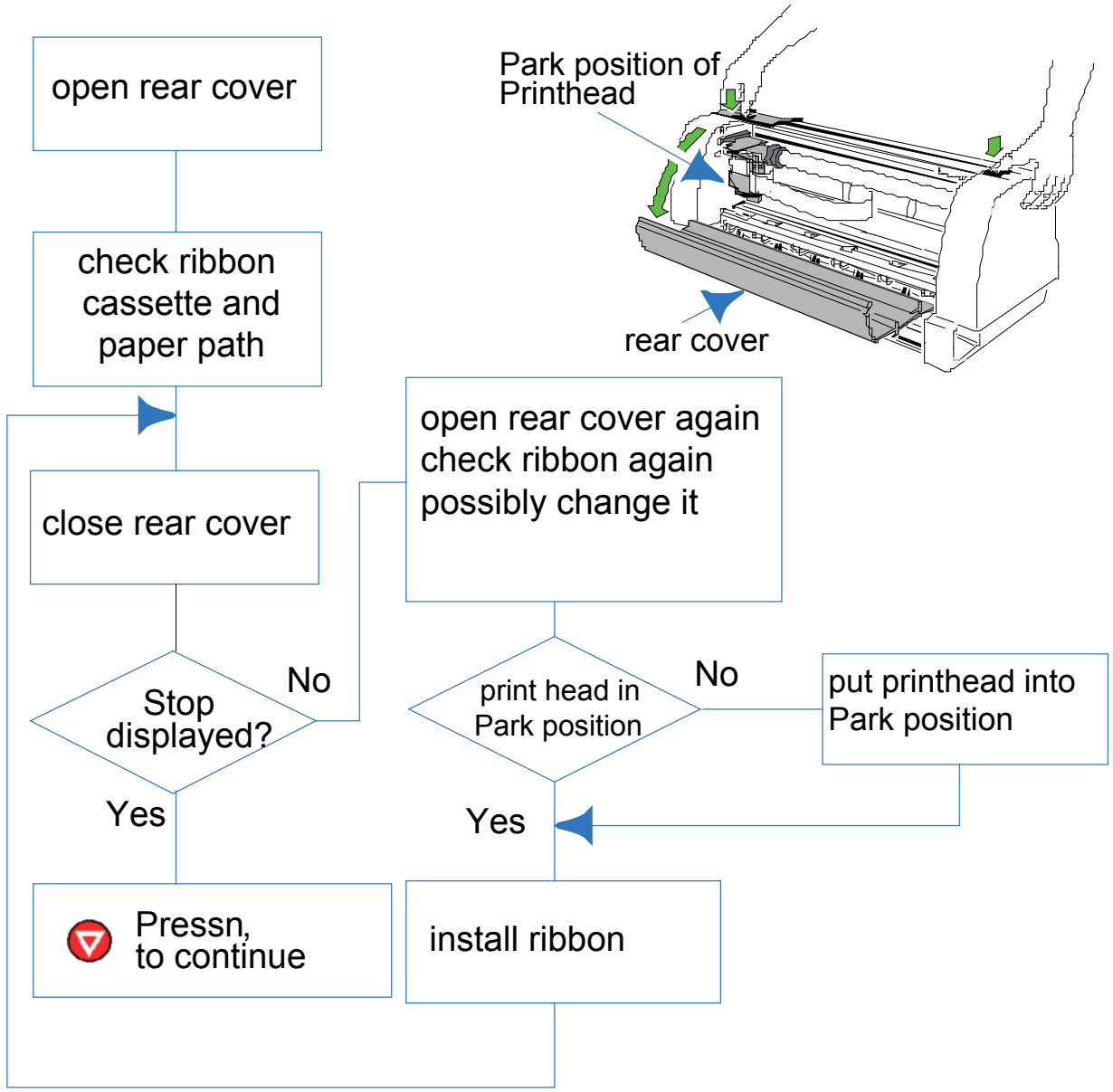
6.7.2 Ribbon unlock

Note: Remove the ribbon cassette only when the print head is in park position.



6.7.3 Ribbon error

That means, that the printer has tried to tense the ribbon and to fix the ribbon feed guide into the fixing device. But there are still problems with the ribbon.

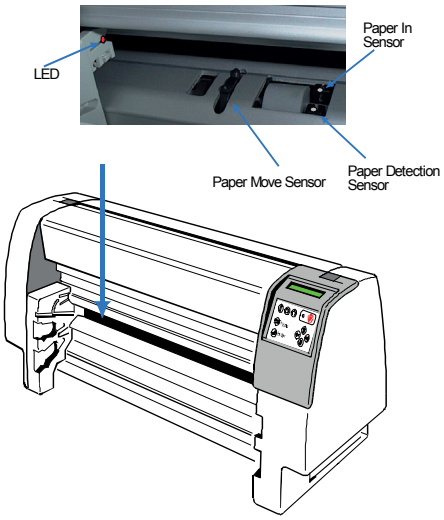


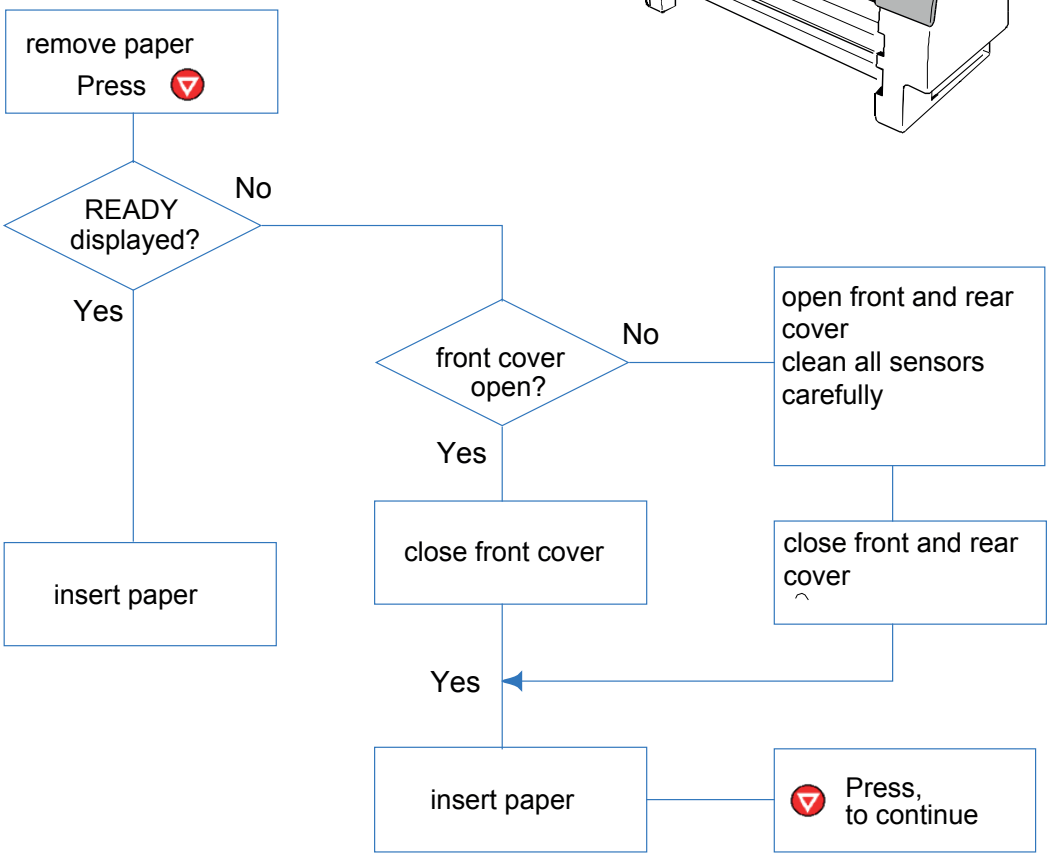
Note: Remove the ribbon cassette only when the print head is in park positi

6.7.4 Remove paper

BThat means, that a sensor isn't free from any obstructions:

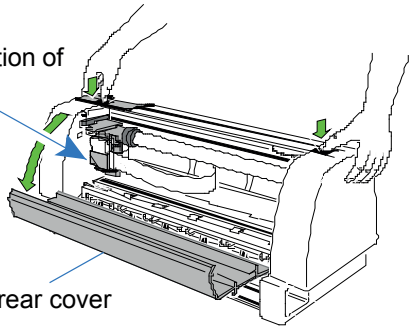
- Paper remains are in the paper path.
- Front cover isn't closed entirely.
- Sunlight shines directly to a sensor.
- Clean the sensors 1, 2 and 3 carefully.

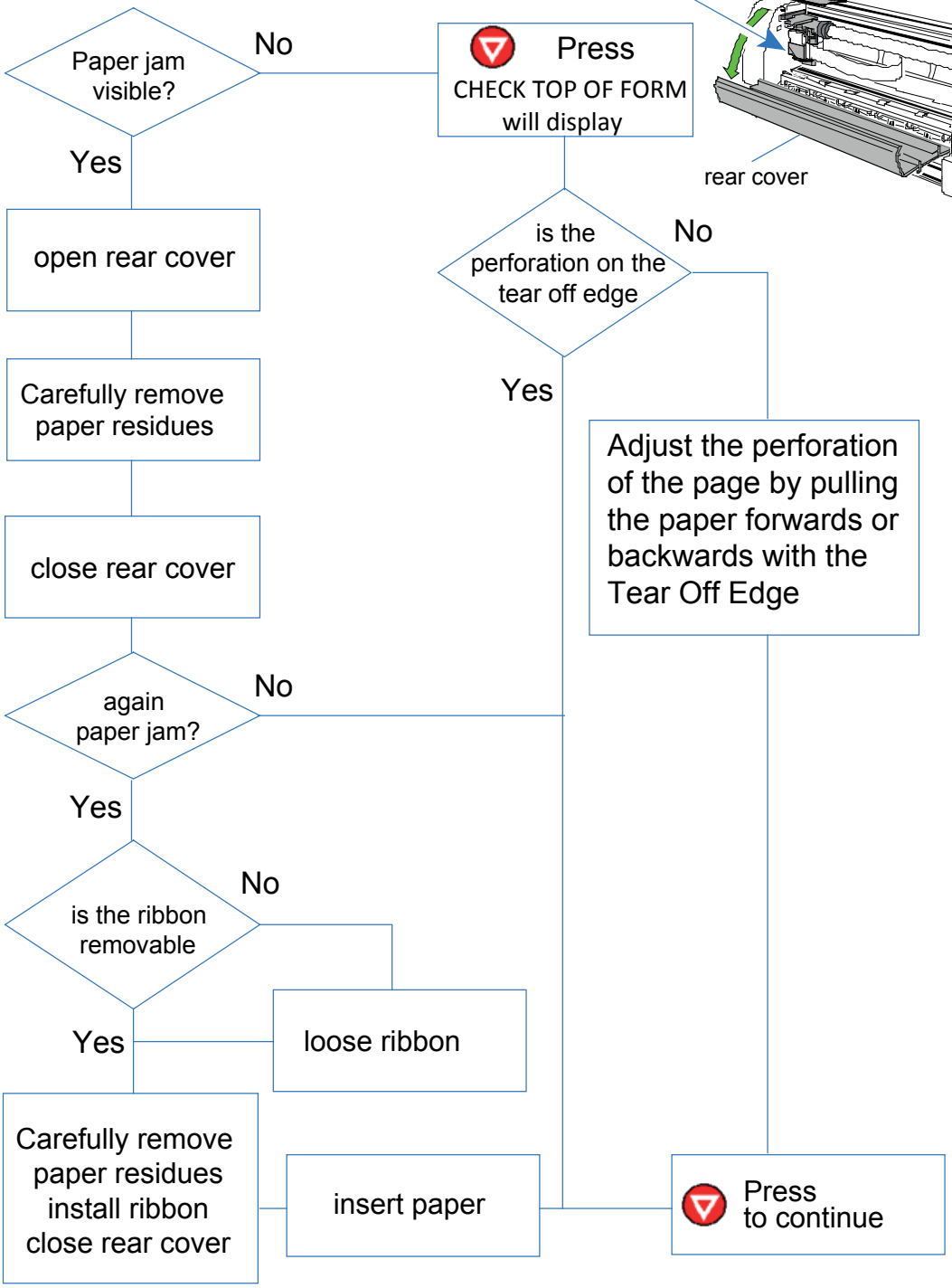




6.7.5 PAPER JAM TRF (Tractor Feed)

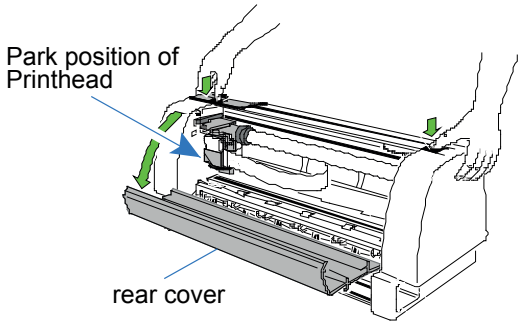
That means, that there are obstructions in the paper path.
Note: Remove the ribbon cassette only if the print head is in park position.

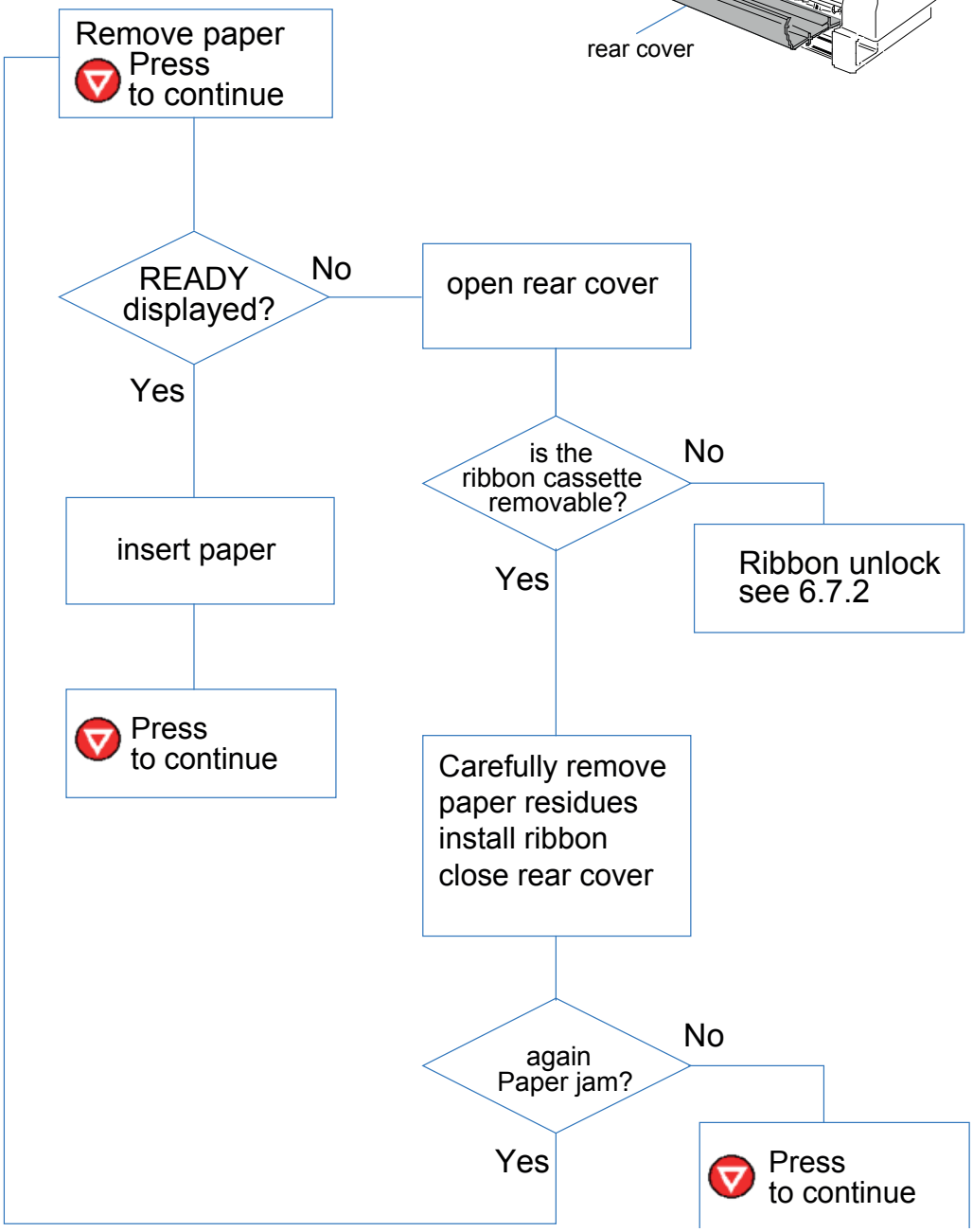




6.7.6 PAPER JAM BIN or MANUAL (ASF only PP 806)

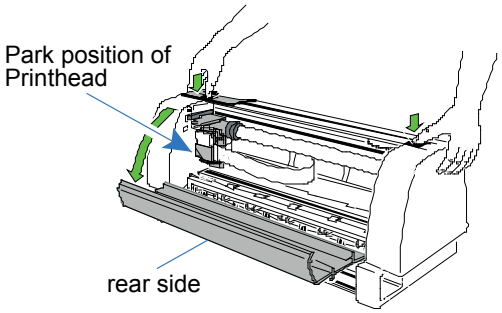
That means, that there are obstructions in the paper path.
Note: Remove the ribbon cassette only if the print head is in park position.

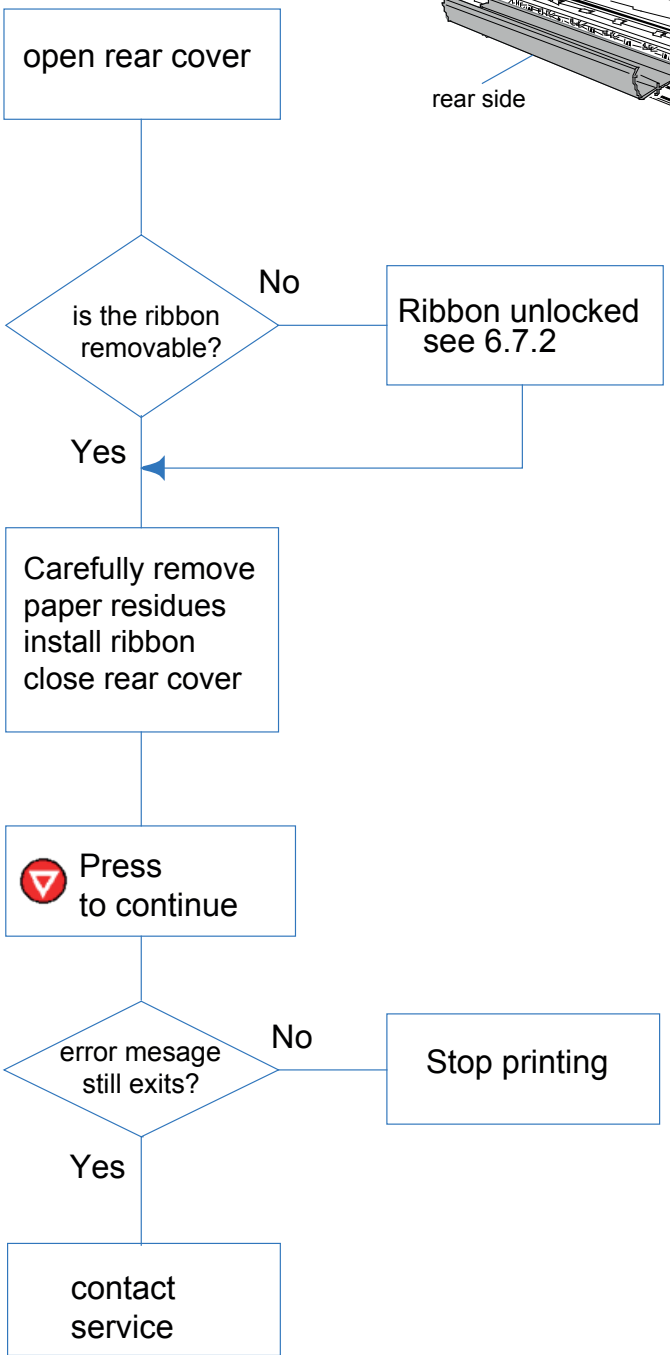




6.7.7 GAP ERROR

That means, that there are obstructions in the paper path.
Note: Remove the ribbon cassette only if the print head is in park position.

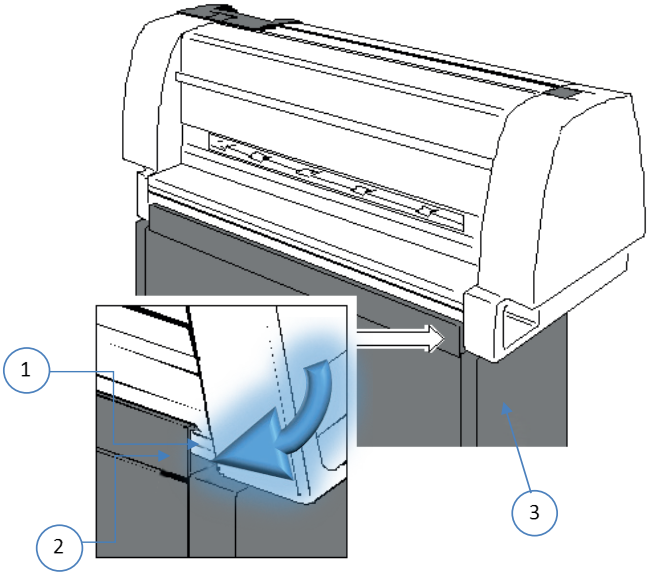




7. Optionen

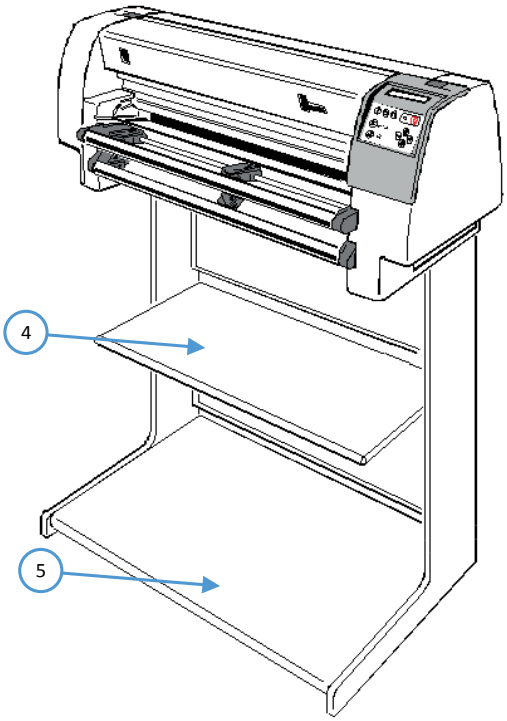
7.1 Printer Stand PP 803 / PP 806 / PP 809

Put the printer onto the stand:
Look at the rear of the printer and put the metal bar (1) underneath the flange-rail (2) of the printer stand (3).



The printer is tightly locked with the stand.

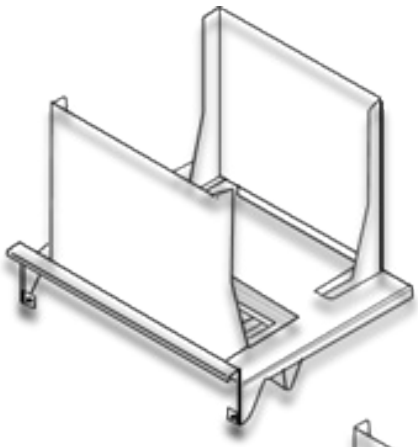
Note : The stand with a shelf for lower tractor (4) and a shelf for upper tractor (5) is an option.
Stacker Option

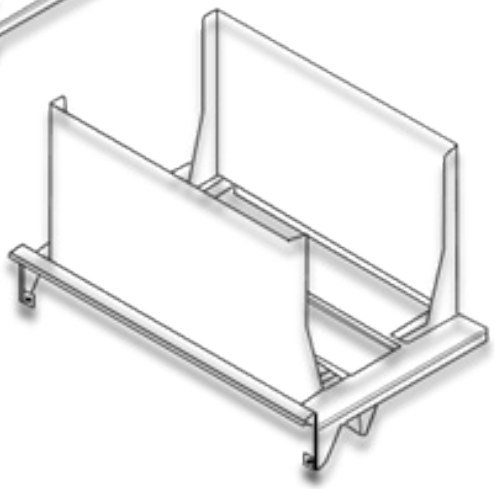


7.2 Stacker Option

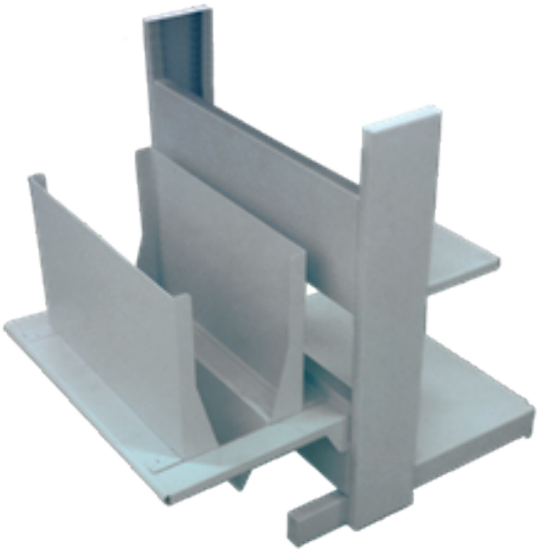
The Stacker Option guides garants that the form will lay down fanfold paper in the best manner.

Stacker Option
PP803





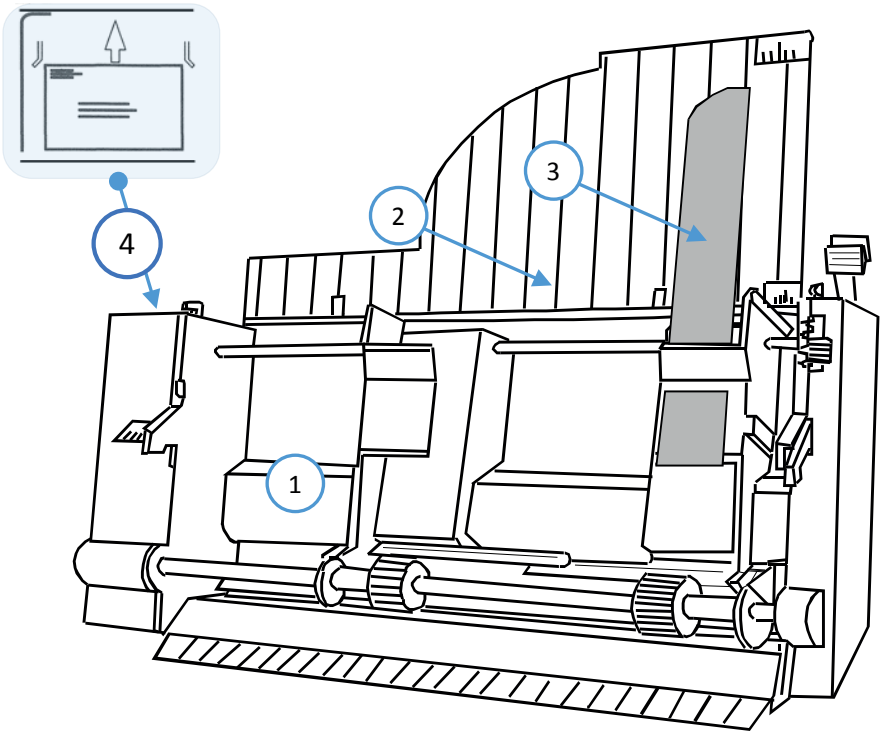
Stacker Option
PP806 / 9



7.3 AFS-Cassettes (Option only for den Drucker PP 806)

The printer can be operated with up to three ASF cassettes. The box comprises following parts:

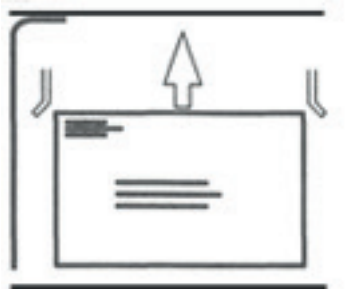
- Cassette (1)
- Paper support (2)
- Forms guide (3) (already mounted)



There are two different types of ASF Cassettes available.

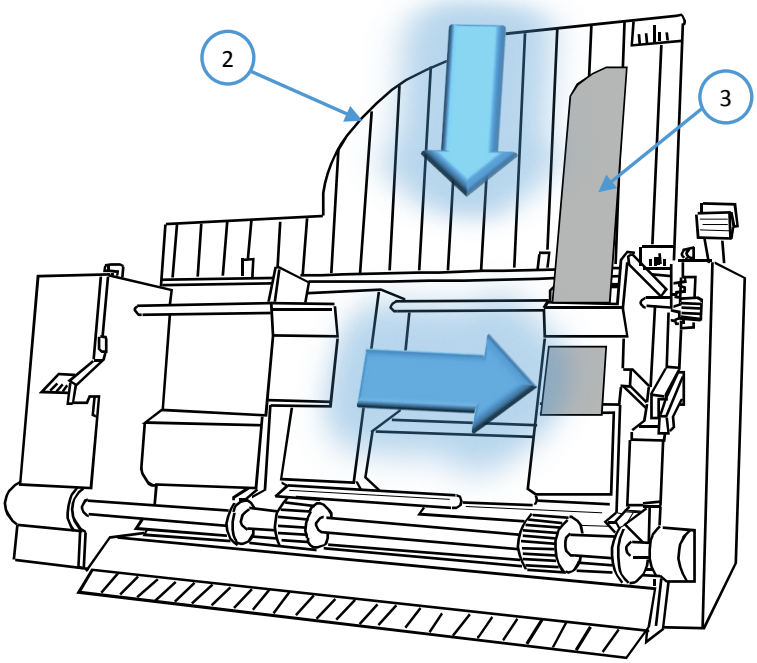
- Type A is the solution for printing on single sheets, such as B. delivery notes, and point-glued single form sets with to six copies. Depending on the paper weight, up to 180 sheets can be fed.
- Type B reliably delivers envelopes, single-sheet and head-glued sets of up to 300 gsm. The capacity is z. For envelopes of 70g / m2 at 40 pieces.
- Type C is the specialist for heavy paper. Cartonized single sheets or envelopes up to 300 g / m2 and even documents with center folding (eg work accompanying cards) are no problem.

Note: The ASF Cassettes B / C are marked with an envelope sticker (position 4).



7.3.1 Prepair ASF-Cassettes

- Mount the paper support (2) onto the cassette.
- Mount the formguide (3) from right to left on the paper guide

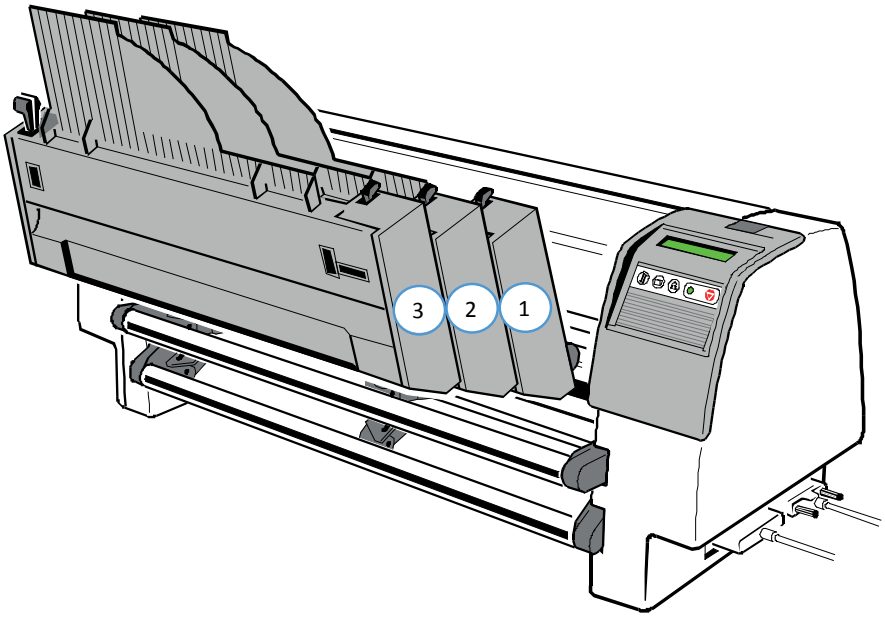


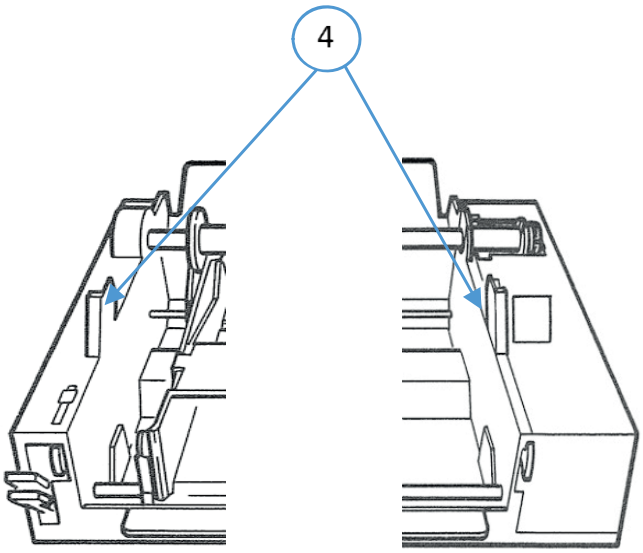
7.3.2 Install ASF Cassettes to the printer

At the same time, up to three identical or different AST´slp can be attached to the printer in succession.

Cassettes-Position	**Minimum Paper langht**
1	104 mm (4,08”)
2	200 mm (7,87”)
3	290 mm (11,42)

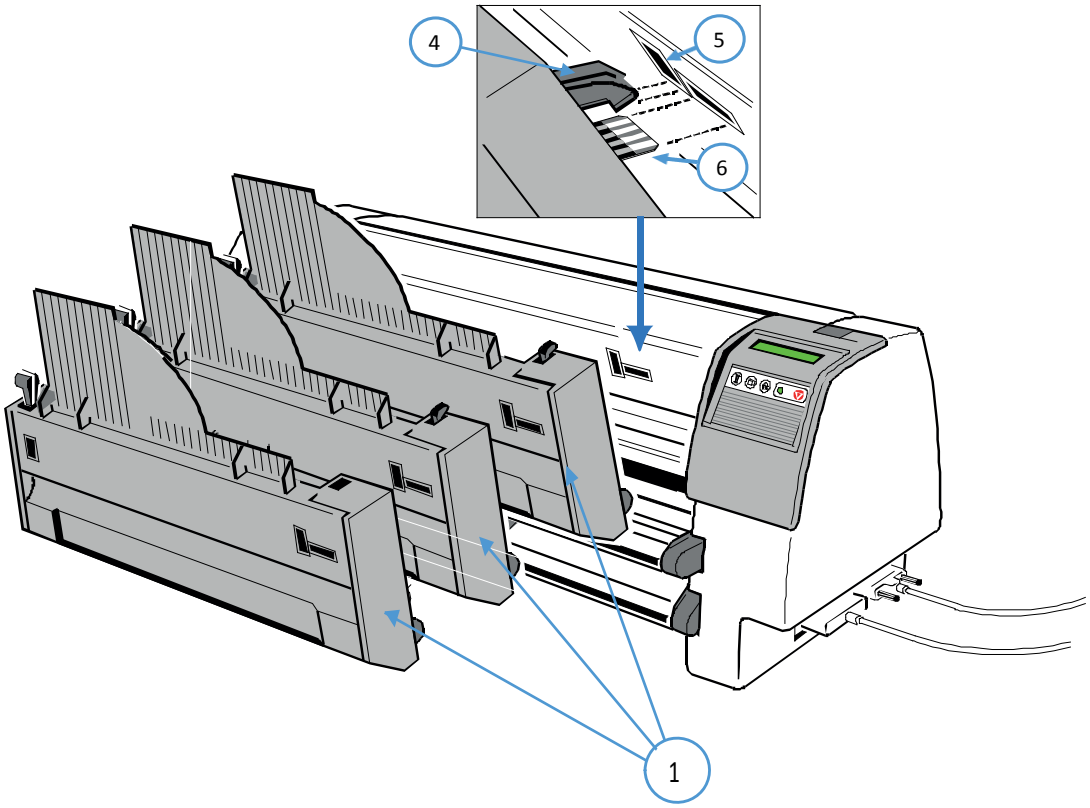
Hinweis: Pos. 1 is the nearest to the printer





- Push the tabs (4) of the cassette (1) into the slots (5) of the printer or of another ASF cassette until they engage.

Note: Be careful not to damage the contacts (6) of the cassette while installing. Up to three ASF cassettes can be installed at any time to enable processing of different paper types and formats simultaneously.

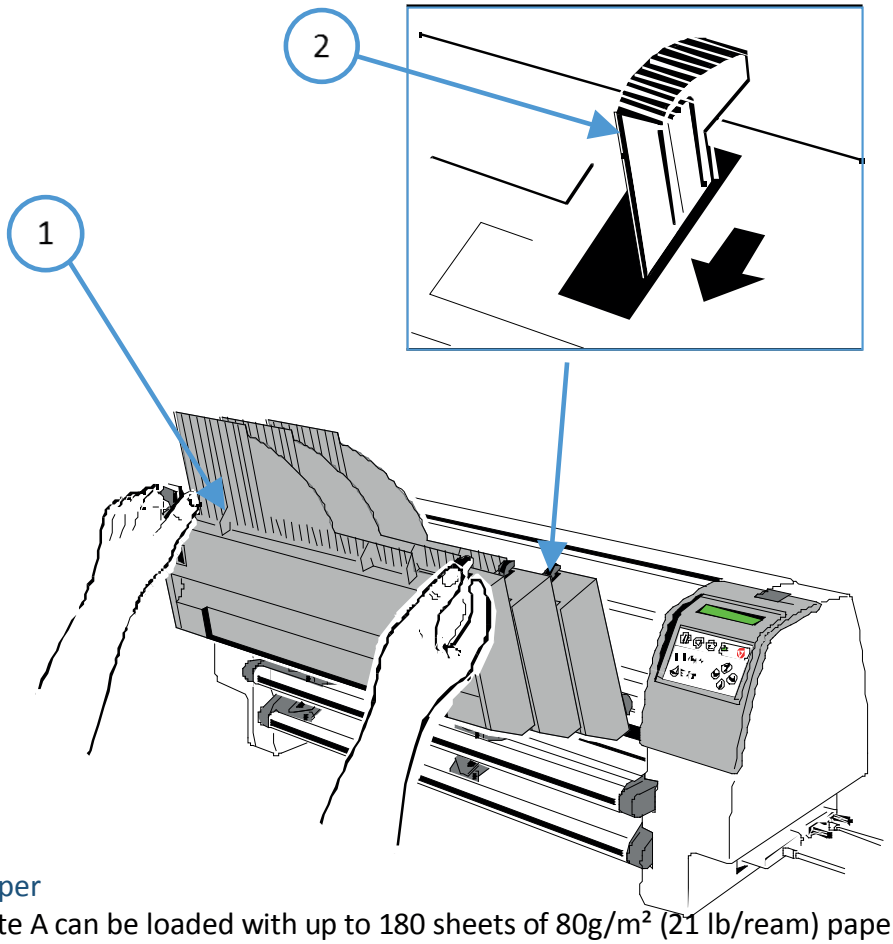


The attachment sequence of the ASF is arbitrary. The minimum length is determined by the order of installation of the paper cassettes because the transport paths to depend on the paper in the printer

7.3.3 Remove ASF Cassette

Remove the ASF cassette (1) from the printer by drawing back both release levers (2).

Note: To remove all AFS cassettes together release only the ASF cassette in position 1. If the ASF cassettes shall be removed individually start the removal procedure with the last mounted ASF Cassette



7.3.4 Insert Paper

The ASF cassette A can be loaded with up to 180 sheets of 80g/m² (21 lb/ream) paper. Cassette B can be loaded with up to 40 envelopes.

Paper that is intended for use with an ASF cassette must be unpacked and acclimatized within the printer environment for at least 24 hours prior to loading. When loading paper for the first time or changing to another format, the ASF cassette needs to be adapted to the paper size. This can be done while the ASF is attached to the printer.

- Squeeze the ASF cassettes levers (2) together, until the cassette automatically opens its load position.
- If required pull up and release the locking levers (1) and adjust the paper guides (3) to the width of the paper to be loaded.
- Align the left hand edge of the paper with the center marker of the alignment scale (4)

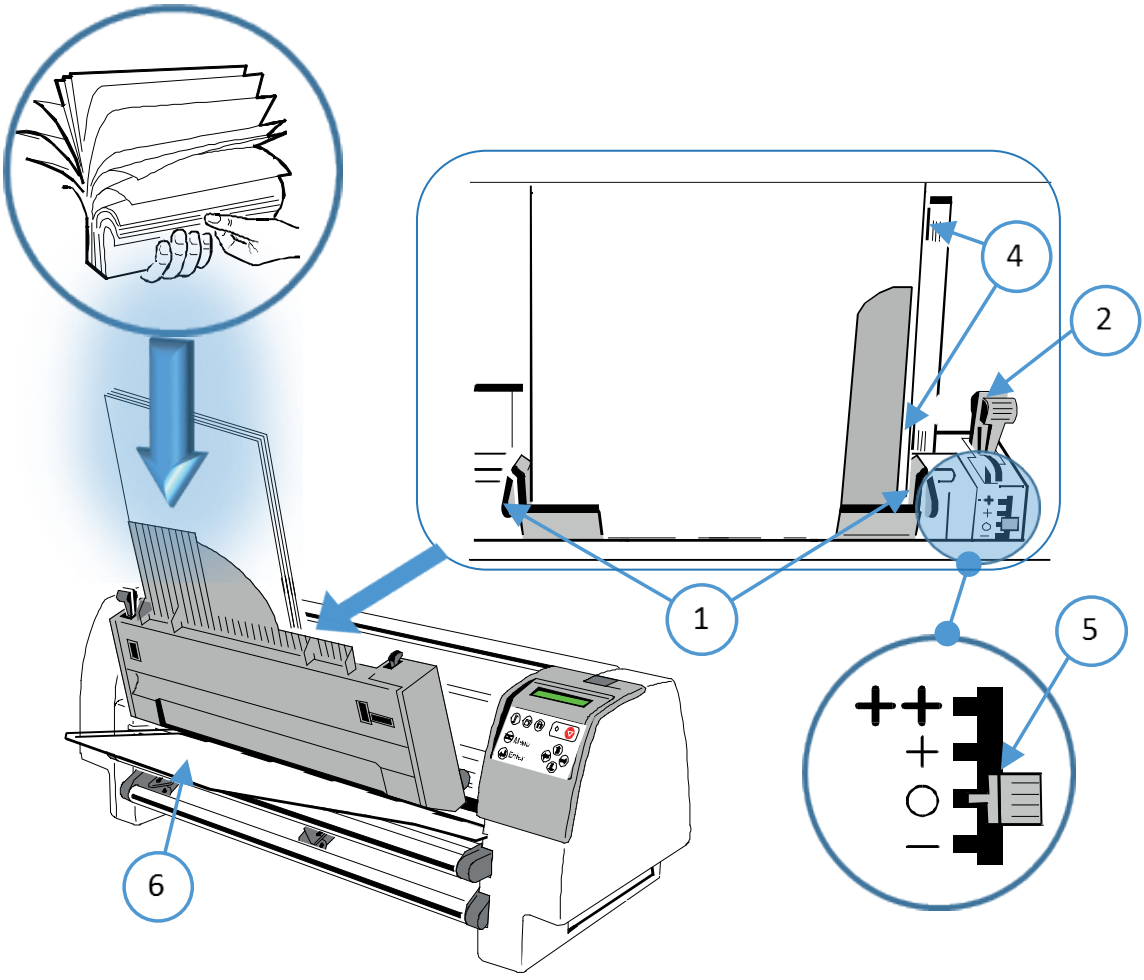
Note: Aligning the edge of the paper with any of the other markers, left or right, will move the margin right or left. Each marker represents 1/ 10 „.

Fix paper guides (3) in position by pushing the levers (1) down.

Manually fan the paper to separate the individual sheets to remove any static charge.
Insert the paper between the guides.

Note: For 80g/m² (21 ib/ream) paper the paper tension lever (5) should be positioned at 0.

- Pull the ASF cassette lever (2) to return it into the operating position.
- Mount the manual sheet feeder (6) or the cut sheet tray (see Chapter Cut Sheet Tray) for the paper output.

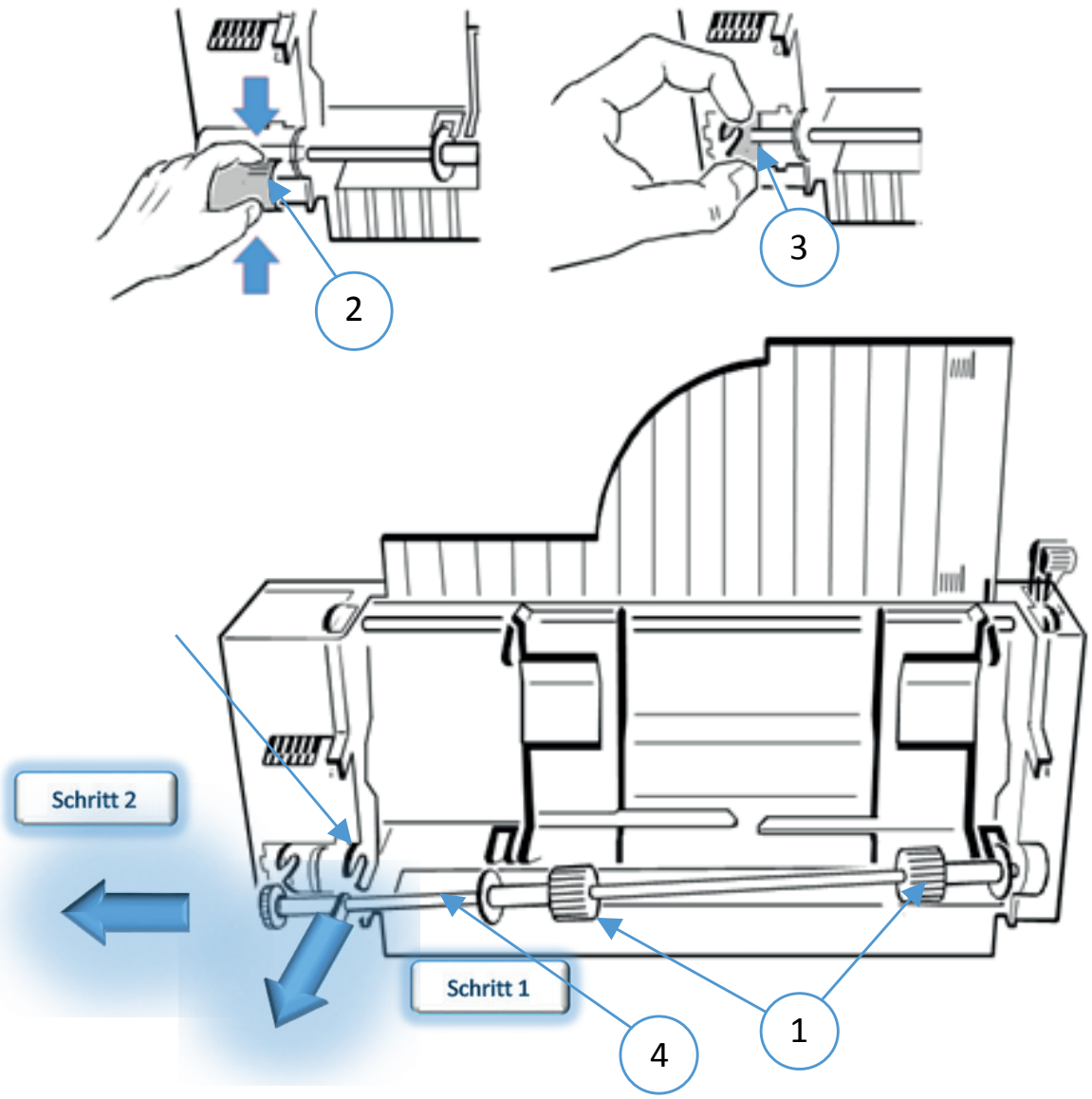


Note: Change the pressure off the pick-up rolls by **loosen lever (2)** if paper in use is more or less than 80 g/m².
Move tension lever (5) towards **-** for lighter and **+** or **++** for heavier paper.

7.3.5 Change pick up roler

Replacement of ASF Pick Up Roller
The lifetime oft he pick up rolls (1) is around 200.000 pages

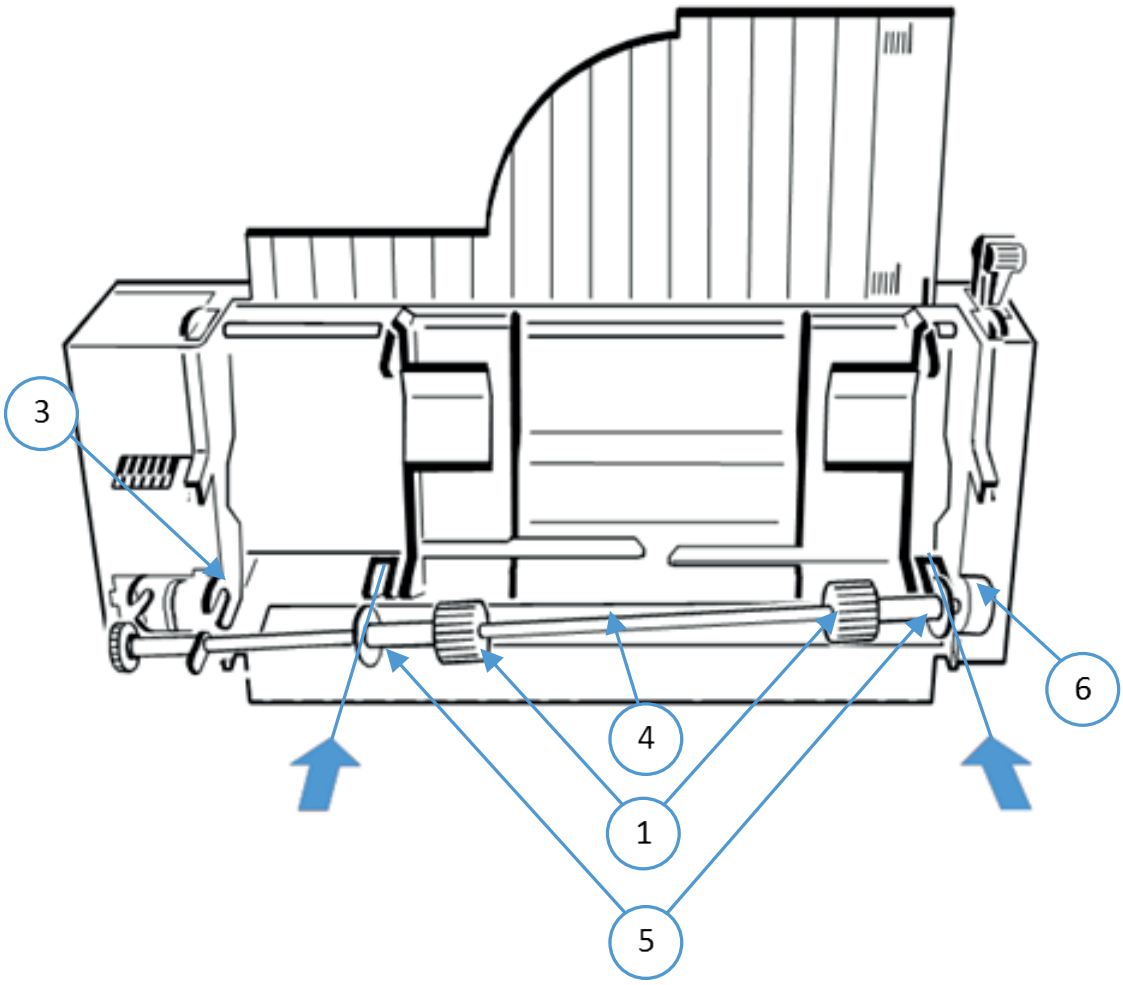
- Remove ASF Pick Up Roller (1)
- Remove the ASF cassette (see 8.3.4 Remove the ASF Cassette).
- Remove the small access cover (2) by squeezing it as shown.
- Pull back the retainers (3) as shown and lift the shaft (4) (step 1).
- Pull the shaft (4) out of the cassette (step 2) and slide the pick-up rollers (1) off the shaft (4).



7.3.6 Anbringen der Vereinzelungsrollen

7.3.6 Install ASF Pick Up Roller

- Slide the new pick-up rollers (1) onto the shaft (4).
- Insert the free end of the shaft (4) into the mounting (6), ensuring that each roller flange (5) is positioned so that they join with the indicated slots.
- Carefully snap the shaft (4) into its mounting (3) and fit the small access cover (2)



7.4 Cut sheet tray front (only PP 803 and PP 806)

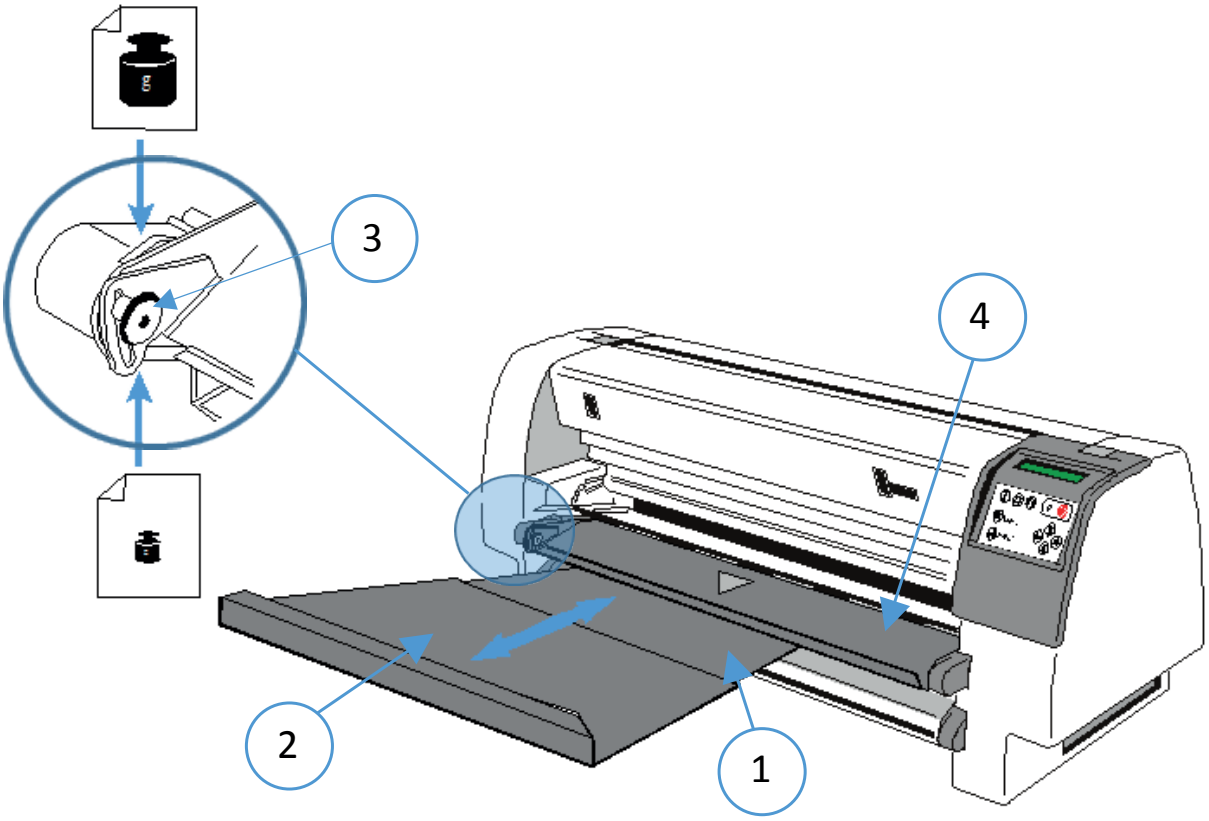
Use the cut sheet tray (1) to collect a batch of paper sheets or formsets in the output area.

Insert Cut Sheet Tray

- Remove the upper tractor cassette (if installed)
- Insert the cut sheet tray (1) in position of the upper tractor cassette.
- Lift the lower part (2) of the cut sheet tray and align it to the length of the paper in use.

To get a correct collection of the sheets or forms loosen screw (3) and swivel the part (4) down for heavy paper (> 80 g/m²) or up for light paper (< 80 g/m²).

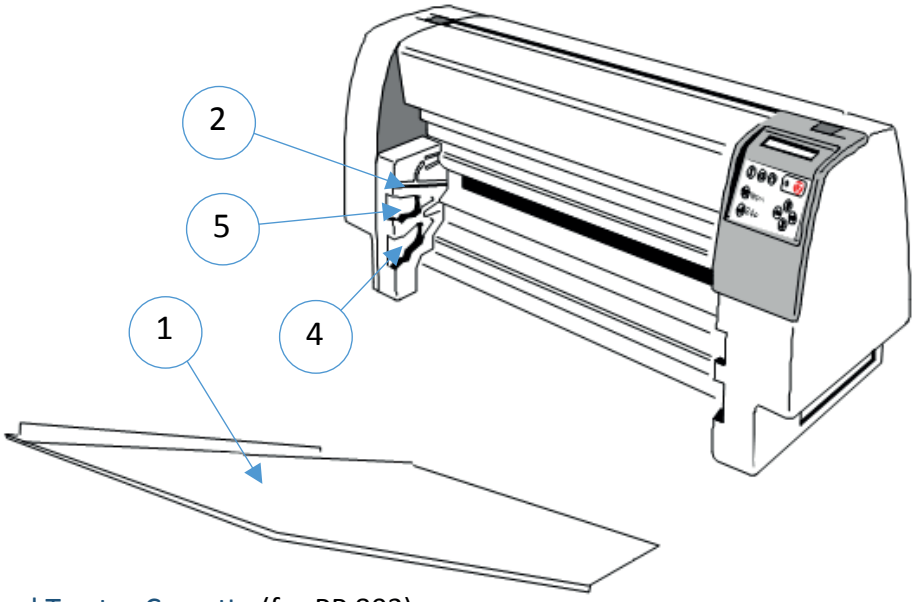
Note: Make a test print and repeat the procedure if necessary. Mount the ASF cassettes (see paragraph Installing the ASF Cassettes).



7.5 Manual sheet feeder (for PP 803)

The optional manual sheet feeder is a special tool to handle cut sheets or form sets.

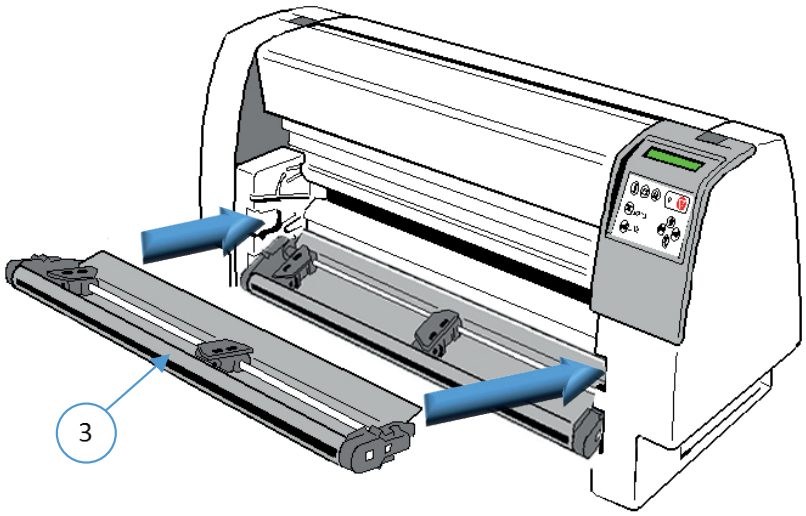
- Insert the manual sheet feeder (1) into the slots (2)



7.6 Optional Tractor Cassette (for PP 803)

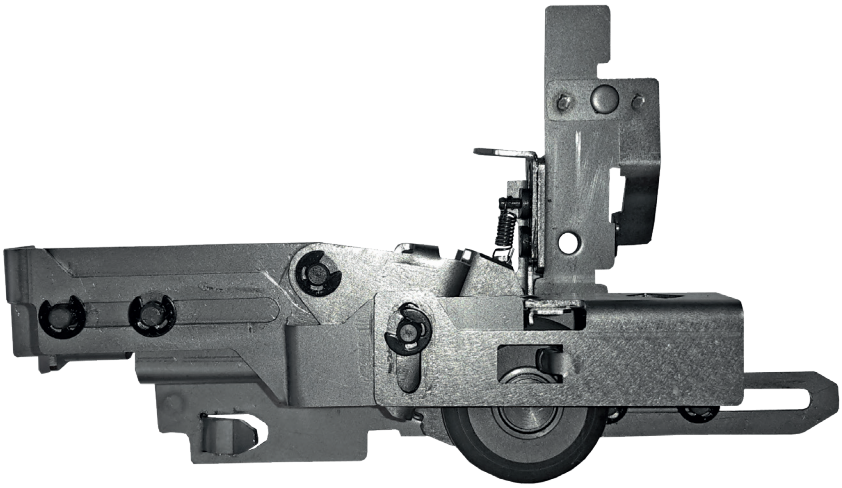
The optional tractor cassette opens a second paper path for fanfold feeding:

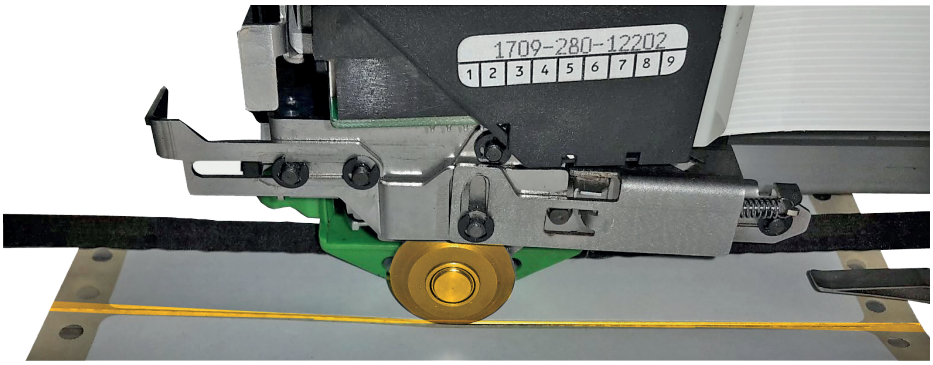
- If one tractor cassette is empty, the printer can change automatically to the other tractor cassette and continue the print job.
- It is also possible to handle different forms in one application.
- Insert the tractor cassette (3) above the standard tractor cassette in postion (5).



7.7 Cutting Device (for PP 803)

The optional paper Cutter is a tool to cut fanfold paper into single Sheet or to separate a print job.





Note: If, for some reason, it is not desired to cut exactly on the perforation it is very important to cut below the perforation. If the paper is cut above the perforation the remaining paper can easily bend and cause a paper jam.
Cutting through a sticky label leaves glue on the blade, leading to problems with the cutting device. Small parts of a label could detach from its paper and block the cutter or the paper path completely

For installation see Chapter install cutter.

8. Technische Daten

8.1 PP 803

The following technical data refer to the standard Personality Module PM SER/PAR

Print Head Technoligy:

- SIDM Seriell Impact Dot Matrix Technologie

Print Direction:

- Bidirectional with speed optimization.

Print Head:

- 24 needles, needle diameter 0.25 mm (0.01 inch) 600 Mio. Strokes per needle.

Matrix

- 24 x 36 forLetter (LQ)
- 12 x 36 for ear Letter (NLQ)
- 12 x 12 for Draft
- 12 x 10 for sHOgh Speed Draft (HSD)

Print Quality:

- Horizontal: 360 dpi
- Vertikal: single path: 180 dpi
  doble pass:: 360 dpi

Print Width:

- max. 94 Characters at 10/Inch

Ribbon:

- Black nylon ribbon with auto ribbon run control for 15 million characters.

Dimention:

- Width: 550 mm / 21.65 inch
- Depth: 280 mm / 11.02 inch
- Height: 295 mm / 11.61 inch

Weight:

- Approximately 16 kg / 39 lb

Diagnostic:

- Printtest and Hex Dump.

Operator Panel:

- 16 digit LCD for menu controlled setup, status- and error messages, trilingual (German, English, French).

Keypad:

- Membrane tactile type with Ready/Stop LED.

Related Voltage:

- Printer operates with a single phase switched-mode power supply.
- Mains selection: automatic range selection
- Rated voltage: 100 - 125 V VAC / 200 - 240 VAC; 3 A / 1.5 A
- Rate frequncy: 50 - 60 Hz

Power Input:

- < 200 W operating,
- < 30 W standby

Environmental Temperature:

- Operating: +10 °C to + 35 °C (+ 50 °F to + 95 °F)
- Storage: - 40 °C to + 70 °C (- 40 °F to + 158 °F)

Relative Humidity:

- Operating: 20% - 80%
- Storage: 5% - 85%

Noice level:

- Noice Level: acc. to ISO 7779
- Printing: <56 dB(A)
- Stand-by no noise Betrieb: <56 dB(A)

Agency Approvals:

- ACC. to CE / VDE / GS, UL, C-UL

Electromagnetic Compatibility:

- ACC. to CE, FCC-Klasse B

Performance::

Print Speed at 10 cpi:

HSD	(high speed draft):	720 Characters/Second
DRAFT:		600 Characters/Second
NLQ	(near Letter Quality):	300 Characters/Second
LQ 1	(Letter Quality):	150 Characters/Second [1])
LQ 2	(Letter) Quality):	100 Characters/Second [1])

[1]) depends on selected font

Throughput acc. to ECMA-132:

- Standard Letter (Dr. Grauert) at 10 cpi
- Draft Quality: 580 pages/h
- Letter Quality: 260 pages/h

Workload:

- 30.000 pages per month

MTBF:

- 15.000 hours at 30% duty sycle.

Paperhandling:

- IntIntegrated push tractor with park position,
- zero tear off for continuous paper, full line position and size control by perforation scanning.
- Manual front insertion as an option.

Paper path:

- Flat bed technology transportable form thickness max 2.0 mm.

Print GAP control:

- The Automatic Gap Control (AGC) optimizes automatically the print gap according to paper thickness.

Copies:

- 1 1original + 8 copies (max. form thickness 0.7 mm [0.028 inch]).
- 1 original without any copy at a form thickness of max. 1.0 mm

Continuous forms

- Tractor Feed: 1 Standarde tractor cassette + 1 optional tractor cassette

Output: to the rear

	Min.	Max.
Paper width:	100 mm (4 inch)	270 mm (10.625 inch)
Paper Lenght:	63 mm (2.5 inch)	355.6 mm (14 inch)
Papier Weight:		
1 Ply:	60 g/m² (16 lb/ream)	120 g/m² (32 lb/ream)#
Multi Ply per Sheet:	40 g/m² (12 lb/ream)	460 g/m² (122.22 lb/ream)
	Max. Thickness 0,7 mm	

Paper Movement:

- 20 inchl / Second

Optionen

Printer Stand:

An option to most conveniently install and operate the printer.

- **Width**: 467 mm / 18.4 inch
- **Height:** 735 mm / 28.9 inch
- **Depth:** 580 mm / 22.8 inch
  790 mm / 31.1 inch (optional with V-Stacker Support)

Weight: approx. 21 kg / 46 lb included package

V-Stacker Support: (Stacker Option)

Optional to lay down fanfold paper in the best way

Paper input:

Manual Insert:
Print media suitable for manual insertion with optional Manual Insertion Guide:

	Min.	Max.
Paper Width:	100 mm (4”)	250 mm (8.2”)
Paper Langth:	63 mm (2.5“)	315 mm (14”)
Paper Weight:		
Single Sheet:	70 g/m² (18.7 lb/ream)	150 g/m² (40 lb/ream)
Formsets:		
1 first page	70 g/m² (18.7 lb/ream)	
Follow pages	40 g/m² (10.7 lb/ream)	
Last page	70 g/m² (18.7 lb/ream)	
Compl. Formset	460 g/m² (123 lb/ream)	
max Thickness:		
printable	1,0 mm (0.04”)	
Transportable	2,0 mm (0.08”)	

Tractor Cassette:
With the Tractor Cassette a second media of the same or different type can be preloaded which is fed into the upper paper path

Cutting device:
The optional paper Cutter is a tool to the fanfold paper into single sheets or to separate a print job.

	Min.	Max.
Paper length:	3 inch	14 inch
Paper weight:		
Cut sheets	60 g/m² (16 lb/ream)	150 g/m² (40 lb/ream)
Form Set	(1 + 5 copies)	350 g/m² (95 lb/ream)

Total paper-/form set thickness = 1.1 m Life time: 1 milion cuts

Processing Lables:
If, for some reason, it is not desired to cut exactly on the perforation it is very important to cut below the perforation. If the paper is cut above the perforation the remaining paper can easily bend and cause a paper jam.
Cutting through a sticky label leaves glue on the blade, leading to problems with the cutting device.

Cut Sheet Tray:
Optional to collect single sheets for output at the front.
- format (MANUAL) depth = 210 mm / 8.3“
- for short formats (shortest position) = 390 mm / 15.4“
- for long formats capacity = up to 50 single sheets (80g/m²)

8.2 PP 806

The following technical data refer to the standard Personality Module PM SER/PAR

Print Head Technoligy:

- SIDM Seriell Impact Dot Matrix Technologie

Print Direction:

- Bidirectional with speed optimization.

Print Head:

- 24 needles, needle diameter 0.25 mm (0.01 inch) 600 Mio. Strokes per needle.

Matrix

- 24 x 36 forLetter (LQ)
- 12 x 36 for ear Letter (NLQ)
- 12 x 12 for Draft
- 12 x 10 for sHOgh Speed Draft (HSD)

Print Quality:

- Horizontal: 360 dpi
- Vertikal: single path: 180 dpi
  doble pass:: 360 dpi

Print Width:

- max. 94 Characters at 10/Inch

Ribbon:

- Black nylon ribbon with auto ribbon run control for 15 million characters.

Dimention:

- Width: 734 mm (28.6 inch)
- Depth: 280 mm (11 inch)
- Height: 295 mm (11.5 inch)

Weight:

- Approximately 20 kg / 44 lb

Diagnostic:

- Printtest and Hex Dump.

Operator Panel:

- 16 digit LCD for menu controlled setup, status- and error messages, trilingual (German, English, French).

Keypad:

- Membrane tactile type with Ready/Stop LED.

Related Voltage:

- Printer operates with a single phase switched-mode power supply.
- Mains selection: automatic range selection
- Rated voltage: 100 - 125 V VAC / 200 - 240 VAC; 3 A / 1.5 A
- Rate frequncy: 50 - 60 Hz

Power Input:

- < 200 W operating,
- < 30 W standby

Environmental Temperature:

- Operating: +10 °C to + 35 °C (+ 50 °F to + 95 °F)
- Storage: - 40 °C to + 70 °C (- 40 °F to + 158 °F)

Relative Humidity:

- Operating: 20% - 80%
- 30% - 70% (when printing on cut sheets with ASF)
- Storage: 5% - 85%

Noice level:

- Noice Level: acc. to ISO 7779
- Printing: <56 dB(A)
- Stand-by no noise Betrieb: <56 dB(A)

Agency Approvals:

- ACC. to CE / VDE / GS, UL, C-UL

Electromagnetic Compatibility:

- ACC. to CE, FCC-Klasse B

Performance::

Print Speed at 10 cpi:

HSD	(high speed draft):	720 Characters/Second
DRAFT:		600 Characters/Second
NLQ	(near Letter Quality):	300 Characters/Second
LQ 1	(Letter Quality):	150 Characters/Second [1])
LQ 2	(Letter) Quality):	100 Characters/Second [1])

[1]) depends on selected font

Throughput acc. to ECMA-132:

- Standard Letter (Dr. Grauert) at 10 cpi
- Draft Quality: 580 pages/h
- Letter Quality: 260 pages/h

Workload:

- 40.000 pages per month

MTBF:
- 15.000 hours at 30% duty sycle.

Paperhandling:
- IntIntegrated push tractor with park position,
- zero tear off for continuous paper, full line position and size control by perforation scanning.
- Manual front insertion as an option.
- Automatic Sheet Feeder (ASF) as option.

Paper path:
- Flat bed technology transportable form thickness max 2.0 mm.

Print GAP control:
- The Automatic Gap Control (AGC) optimizes automatically the print gap according to paper thickness.

Copies:
- 1 1original + 8 copies (max. form thickness 0.7 mm [0.028 inch]).
- 1 original without any copy at a form thickness of max. 1.0 mm

Continuous forms
- Tractor Feed: 1 Standarde tractor cassette + 1 optional tractor cassette

Output: to the rear

	Min.	Max.
Paper width:	100 mm (4inch)	420 mm (17,7 inch)
Paper Lenght:	63 mm (2.5 inch)	355.6 mm (14 inch)
Papier Weight:		
1 Ply:	60 g/m² (16 lb/ream)	120 g/m² (32 lb/ream)
Multi Ply per Sheet:	40 g/m² (12 lb/ream)	460 g/m² (122.22 lb/ream)
		Thickness 0,7 mm

Paper Movement:
- 21 inchl / Second

Optionen
Printer Stand:
An option to most conveniently install and operate the printer.
- **Width**: 635 mm / 25 inch
- **Height:** 735 mm / 28.9 inch
- **Depth:** 580 mm / 22.8 inch
  790 mm / 31.1 inch (optional with V-Stacker Support)

Weight: approx. 23 kg / 49 lb included package

V-Stacker Support: (Stacker Option)
Optional to lay down fanfold paper in the best way

Paper input::

Manual Insert:
Print media suitable for manual insertion with optional Manual Insertion Guide:

	Min.	Max.
Paper Width:	100 mm (4”)	250 mm (8.2”)
Paper Langth:	63 mm (2.5“)	315 mm (14”)
Paper Weight:		
Single Sheet:	70 g/m² (18.7 lb/ream)	150 g/m² (40 lb/ream)
Formsets:		
1 first page	70 g/m² (18.7 lb/ream)	
Follow pages	40 g/m² (10.7 lb/ream)	
Last page	70 g/m² (18.7 lb/ream)	
Compl. Formset	460 g/m² (123 lb/ream)	

max Thickness:

printable	1,0 mm (0.04”)
Transportable	2,0 mm (0.08”)

Tractor Cassette:
With the Tractor Cassette a second media of the same or different type can be preloaded which is fed into the upper paper path

Automatic Sheet Feeder Typ A
Suitable for automatic insertion of cut sheets and thin form sets (Cassette A) or for thick and inflexible sheets, not interrupted top-glued forms, and envelopes (Cassette B).

	Min.	Max.
Paper Width:	105 mm (4.13“)	305 mm (12“)
Paper Length:	105 mm (4.13“)	315 mm (12.4“)

The minimum paper length for all cassettes depends on the mounting position of the cassette as the feeding path of the paper is the longest in the last mounted cassette.

	Min.	Max.
Cassette 1 (first mont.)	104 mm (4.13“)	315 mm (12.4“)
Cassette 2	200 mm (7.87“)	315 mm (12.4“)
Cassette 3 (last mont.)	290 mm (11.42“)	315 mm (12.4“)
Paper Weight		
Single Sheet	70 g/m2 (18 lb/ream)	100 g/m2 (26 lb/ream)
Form sets of action paper	260 g/m2 (63 lb/ream)	

Weight of the first and last sheet 70 g/m2(18 lb/ream) 80 g/m2 (20 lb/ream)

Total thickness of set 0.35 mm (0.014“)

Note: The first and last page of the form set must have a weight between 70 and 80 g/m²; the top-glued area must end 20 mm from the left and right margins.

Capacity: 180 sheets of 80 g/m² (21 lb/ream) paper weight.

Automatic Sheet Feeder Typ B/C

The minimum paper length for cassette B depends on the mounting position of the cassette as the feeding path of the paper is the longest in the last mounted cassette.

	Min.	Max.
Paper Width:	105 mm (4.13“)	305 mm (12“)
Paper Length:	105 mm (4.13“)	315 mm (12.4“)
Cassette 1 (first mont.)	104 mm (4.13“)	315 mm (12.4“)
Cassette 2	200 mm (7.87“)	315 mm (12.4“)
Cassette 3 (last mont.)	290 mm (11.42“)	315 mm (12.4“)
Paper Weight		
Single Sheet	100 g/m2 (26 lb/ream)	150 g/m2 (40 lb/ream)

Appropriate direction of the fibre and flexibility for automatic feeding required.

Form sets of action paper	300g/m² (80 lb/ream)
Weight of first / last page	70 / 80g/m² (18/21 lb/ream)
Total thickness of set	0.5 mm (0.02“)

Note: The form sets for cassette B must not have a horizontal perforation or carbon paper; the top-glued area must not have any margins as required for cassette A.

Envelopes unlined,	70g/m² (18 lb/ream) 90g/m² (24 lb/ream) adhesive flap covered
Capacity:	40 envelopes of 70g/m² (18 lb/ream) paper weight

Cutting device:

The optional paper Cutter is a tool to the fanfold paper into single sheets or to separate a print job.

	Min.	Max.
Paper length:	3 inch	14 inch
Paper weight:		
Cut sheets	60 g/m² (16 lb/ream)	150 g/m² (40 lb/ream)
Form Set	(1 + 5 copies)	350 g/m² (95 lb/ream)

Total paper-/form set thickness = 1.1 m Life time: 1 milion cuts

Processing Lables:

If, for some reason, it is not desired to cut exactly on the perforation it is very important to cut below the perforation. If the paper is cut above the perforation the remaining paper can easily bend and cause a paper jam.

Cutting through a sticky label leaves glue on the blade, leading to problems with the cutting device.

Cut Sheet Tray:

Optional to collect single sheets for output at the front.

- format (MANUAL) depth = 210 mm / 8.3“
- for short formats (shortest position) = 390 mm / 15.4“
- for long formats capacity = up to 50 single sheets (80g/m²)

8.3 PP 809

The following technical data refer to the standard Personality Module PM SER/PAR

Print Head Technoligy:

- SIDM Seriell Impact Dot Matrix Technologie

Print Direction:

- Bidirectional with speed optimization.

Print Head:

- 24 needles, needle diameter 0.25 mm (0.01 inch) 600 Mio. Strokes per needle.

Matrix

- 24 x 36 forLetter (LQ)
- 12 x 36 for ear Letter (NLQ)
- 12 x 12 for Draft
- 12 x 10 for sHOgh Speed Draft (HSD)

Print Quality:

- Horizontal: 360 dpi
- Vertikal: single path: 180 dpi
  doble pass:: 360 dpi

Print Width:

- max. 94 Characters at 10/Inch

Ribbon:

- Black nylon ribbon with auto ribbon run control for 15 million characters.

Dimention:

- Width: 734 mm (28.6 inch)
- Depth: 280 mm (11 inch)
- Height: 295 mm (11.5 inch)

Weight:

- Approximately 20 kg / 44 lb

Diagnostic:

- Printtest and Hex Dump.

Operator Panel:

- 16 digit LCD for menu controlled setup, status- and error messages, trilingual (German, English, French).

Keypad:

- Membrane tactile type with Ready/Stop LED.

Related Voltage:

- Printer operates with a single phase switched-mode power supply.
- Mains selection: automatic range selection
- Rated voltage: 100 - 125 V VAC / 200 - 240 VAC; 3 A / 1.5 A
- Rate frequncy: 50 - 60 Hz

Power Input:

- < 200 W operating,
- < 30 W standby

Environmental Temperature:

- Operating: +10 °C to + 35 °C (+ 50 °F to + 95 °F)
- Storage: - 40 °C to + 70 °C (- 40 °F to + 158 °F)

Relative Humidity:

- Operating: 20% - 80%
- 30% - 70% (when printing on cut sheets with ASF)
- Storage: 5% - 85%

Noice level:

- Noice Level: acc. to ISO 7779
- Printing: <56 dB(A)
- Stand-by no noise Betrieb: <56 dB(A)

Agency Approvals:

- ACC. to CE / VDE / GS, UL, C-UL

Electromagnetic Compatibility:

- ACC. to CE, FCC-Klasse B

Performance::

Print Speed at 10 cpi:

HSD	(high speed draft):	000 Characters/Second
DRAFT:		750 Characters/Second
NLQ	(near Letter Quality):	430 Characters/Second
LQ 1	(Letter Quality):	216 Characters/Second [1])
LQ 2	(Letter) Quality):	150 Characters/Second [1])

[1]) depends on selected font

Throughput acc. to ECMA-132:

- Standard Letter (Dr. Grauert) at 10 cpi
- HSD High Speed Draft 800 pages/h
- Draft Quality: 760 pages/h
- Near Letter Quality 580 pages/h
- Letter Quality: 370 pages/h

Workload:

- 40.000 pages per month

MTBF:
- 15.000 hours at 30% duty sycle.

Paperhandling:
- IntIntegrated push tractor with park position,
- zero tear off for continuous paper, full line position and size control by perforation scanning.

Paper path:
- Flat bed technology transportable form thickness max 2.0 mm.

Print GAP control:
- The Automatic Gap Control (AGC) optimizes automatically the print gap according to paper thickness.

Copies:
- 1 1original + 8 copies (max. form thickness 0.7 mm [0.028 inch]).
- 1 original without any copy at a form thickness of max. 1.0 mm

Continuous forms
- Tractor Feed: 1 Standarde tractor cassette + 1 optional tractor cassette

Output: to the rear

	Min.	Max.
Paper width:	100 mm (4inch)	420 mm (17,7 inch)
Paper Lenght:	63 mm (2.5 inch)	355.6 mm (14 inch)
Papier Weight:		
1 Ply:	60 g/m² (16 lb/ream)	120 g/m² (32 lb/ream)
Multi Ply per Sheet:	40 g/m² (12 lb/ream)	460 g/m² (122.22 lb/ream)
		Thickness 0,7 mm

Paper Movement:
- 21 inchl / Second

Optionen
Printer Stand:
An option to most conveniently install and operate the printer.
- **Width**: 635 mm / 25 inch
- **Height:** 735 mm / 28.9 inch
- **Depth:** 580 mm / 22.8 inch
  790 mm / 31.1 inch (optional with V-Stacker Support)

Weight: approx. 23 kg / 49 lb included package

V-Stacker Support: (Stacker Option)
Optional to lay down fanfold paper in the best way

Personality Module (PM) SER/PAR as a sample.

Interface:
- Parallel Centronics® (IEEE 1284 compatibility mode and nibble mode)
- Serial RS-232/RS-422 shared operation

Emulations:
- EPSON® LQ 1060/2550 / ESC/P2
- IBM® Proprinter XL24 (AGM)

Buffer:
- Up to 64 kByte.

Character Sets: (see also Appendix C „Character Set Tables“)
- Code Pages EE: 437 GK, 851 GK, 928 GK, 855 CYRI, 852, 866, 869, Kamenicky, ISO Latin 2, Mazovia, 437 HUN, 852 SEE, 866 LAT, WIN LAT 2.
- Code Pages EE2: 771, 773, 774, 775, Baltic RIM.
- ISO 8859/15, ISO 8859/1, ISO 8859/5 ISO 8859/9
- IBM SET 1+ 2 incl. 14 national versions.
- IBM Code Pages 437, 850, 858, 860, 863, 865.
- Epson Ext. Graphic Character Set incl. 15 national versions.

Fonts:
DRAFT: Data, HSD; and Data Large.
Near letter and letter quality: Roman, San Serif, Courier, Prestige, Script, Orator-C, and Orator.
Letter quality: OCR B, OCR A.

Character Attributes:
Bold, italic, shadow, outline, double strike, underline, double underline, overline, strike through, sub/superscript.

Font Size:
Normal, Double to octuple for all fonts, Data Large 99-fold size.

Character Pitch:
Standard character pitches are: 10, 12, 15, 17.1, 18, 20 cpi and proportional. In addition, commands are defined to select non-standard character pitches. It is also possible to print overlapped characters. Fonts will be compressed if smaller pitches are selected.

Line Spacing:
2, 3, 4, 6, 8, 12 ... 360 lpi

Barcodes:
Code 39, 2 of 5 industrial, 2 of 5 interleaved, Codabar (Monarch), EAN 8, EAN 13, Code 93, MSI Mod 10/10, UPC-E, UPC-A, Code 128 (incl. EAN 128), Postnet and KIX Code (see also Appendix F Barcode Quick Reference).

Graphics:

- Horizontal: 360 dpi
- Vertical: single pass printing: 180 dpi
  Double pass printing: 360 dpi

Graphics Quality by driver input 180 x 180 dpi.

- Standard no changes
- Win.LQ 180 Dots/Inch
- Win.NLQ 90 Dots/Inch
- Win.Draft 60 Dots/Inch

Line Mode

2, 3, 4, 6, 8, 12 n/360 Zeilen/Inch

Hinweis: Printer drivers for all Windows platforms 32/64 bits are located on the CD-ROM supplied with the printer or can be found on the Internet ***https://www.psi-matrix.eu*** for download

Appendix A System Interface Description

There are two system interfaces:

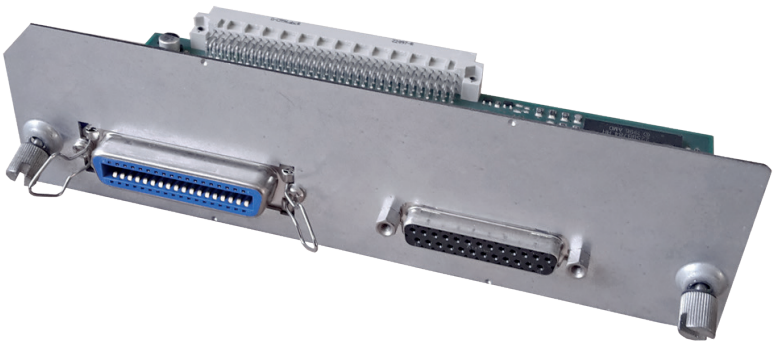
- Serial interface with RS-232C or RS-422 support
- Parallel Centronics interface.

The interfaces can be operated in three different modes:

parallel interface active
parallel interface active in shared mode with serial RS-232C
parallel interface active in shared mode with serial RS-422

The following chapter gives an overview about interface characteristics, control signals, protocols, and cabling.

Any change to the operation mode (PARALLEL, PARALL. / RS232, or PARALL. / RS422) and to the size of the interface buffer is possible only when the interface buffer is completely empty of data.



Parallel Centronics Interface Serial Interface RS-232C / RS-422

A 1 Serial Interface RS-232C / RS-422

A 1.1 Interface Characteristics

Signal Description RS-232C		Pin No.	Direction
PG	Protective Ground	1	-
TXD	Transmit Data (from printer to host)	2	OUTPUT
RXD	Receive Data (from host to printer)	3	INPUT
RTS	Request to Send (printer is requesting data transfer from host)	4	OUTPUT
CTS	Clear to Send (host is ready to receive data from printer)	5	INPUT
DSR	Data Set Ready (host is requesting data transfer from printer,can not be used for flow control, internaly set to "1")	6	INPUT
SG	Signal Ground	7	-
DTR	Data Terminal Ready (printer is ready to receive - see also on the following pages the data communication protocols for detail meaning	20	OUTPUT

Signal Description RS-422		Pin No.	Direction
PG	Protective Ground	1	-
RDA	Receive Data (from host to printer)	3	INPUT
SDA	Send Data (from printer to host)	9	OUTPUT
SDB	Not Send Data (from printer to host)	10	OUTPUT
RDB	Not Receive Data (from host to printer)	18	INPUT

Transmission rate: 600, 1200, 2400, 4800, 9600, or 19200 baud
Parity: even, odd, or none, Word length: 7, or 8 bits
Number of stop bits: In receive mode the printer accepts 1, or 2 stop bits. The printer transmits always two bits.

Transmission Protocols:

- DTR - Ready/Busy (only RS-232C)
- XON/XOFF
- XON/XOFF + DTR (only RS-232C)

A1.2 Serial Interface with RS-232C

Transmission Protocols:

- DTR - Ready/Busy (only RS-232C)
- XON/XOFF
- XON/XOFF + DTR (only RS-232C)

Transmission Protocols and Connection Diagrams

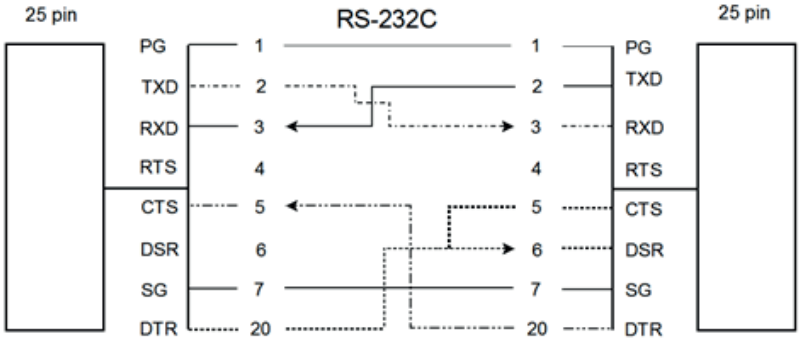
DTR - Ready/Busy (Supported RS-232C Protocols) - Full Duplex Local Connection

This protocol uses the following signal lines:

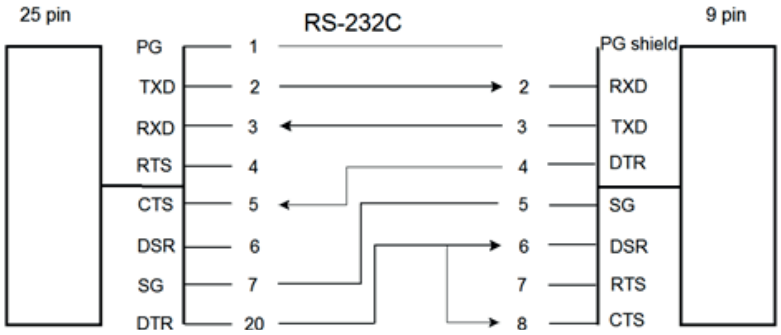
Pin	
1	Protective Ground (PG)
2	Transmit Data (TXD)
3	Receive Data (RXD)
5	Clear to Send (CTS)
6	Signal Ground (SG)
20	Data Terminal Ready (DTR)

Note: The signal lines TXD (pin 2) and CTS (pin 5) are only necessary if the Device Status Report is required.

The READY / BUSY DTR protocol uses the DATA TERMINAL READY (DTR) line to control the transmission of data from the host to prevent a buffer overflow.



Note: Printer DTR may be connected to host DSR + CTS or only to host DSR and a bridge between RTS and CTS



Note: Printer DTR may be connected to host DSR + CTS or only to host DSR and a bridge between RTS and CTS

Additional Information
After Power-ON DTR is activated and the printer is ready to receive data.

DTR is deactivated when the interface buffer has only space left for 256 more characters. Further incoming data will be stored until the interface buffer is full. All data sent in addition will get lost. DTR is activated again if there is a free interface buffer space of 512 characters.

DTR is immediately deactivated, if local mode is entered.

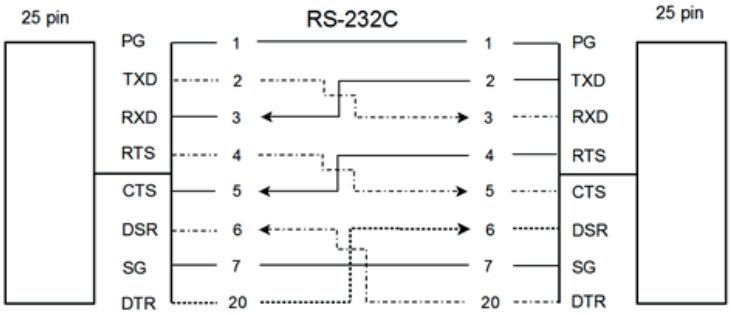
It is activated again, if local mode is left and a minimum of 512 bytes interface buffer is available.

XON/XOFF

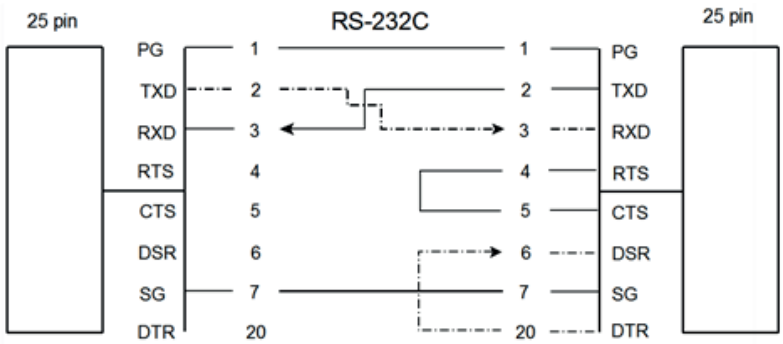
This protocol requires all signal lines.

Pin		Pin	
1	Protective Ground (PG)	4	Request to Send (RTS)
2	Transmit Data (TXD)	5	Clear to Send (CTS)
3	Receive Data (RXD)	6	Data Set Ready (DSR)
7	Signal Ground (SG)	20	Data Terminal Ready (DTR)

Standard Connection



For local connections **RTS** with **CTS** can be connected and likewise **DTR** with **DSR**



Additional Information
After Power-ON DTR and RTS are activated and the printer is ready to receive data.

XOFF is sent, when the interface buffer has only space left for 256 more characters. **XOFF** is sent again, at a level of 128 characters buffer space. Further incoming data will be stored until the interface buffer is full. All data sent in addition will get lost.

XON is sent when the interface buffer provides space for a minimum of 512 characters.

XON/XOFF can only be sent successfully when **CTS** is at active state.
When the CTS Mode is set to "CTS ignore" CTS is allways in the active state.

XOFF will be sent immediately if local mode is entered.

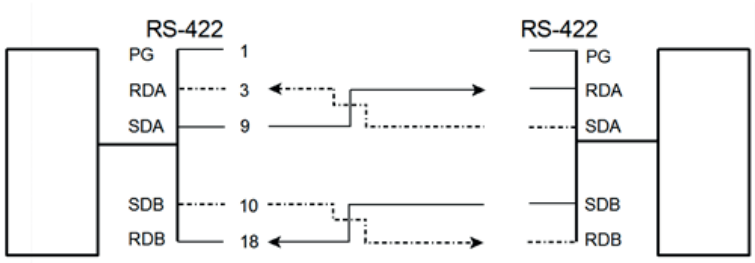
XON is sent again, if local mode is left and a minimum of 512 byte interface buffer is available.

A 1.3 Serial Interface with RS-422

This interface type requires the signal lines.

Pin	
1	Protective Ground (PG)
3	Receive Data (RDA)
9	Send Data (SDA)
10	Not Send Data (SDB)
18	Not Receive Data (RDB)

Standard Connection:



Note: Protective ground (PG) connected either to host **or** printer

A 2 Parallel Centronics® Interface

A 2.1 Interface Characteristics - Connector Pin Assignment / Signal Definition

Signal	Description	Pin No.	Return line Pin No.	Direction
_____ STROBE **)	Control Signal from the Host. Printer reads data line (Data 1 to Data 8) when going low.	1	19	Input
Data 1 - 8	Data lines transfer the characters from the host to the printer. Data 8 = most significant bit.	2 - 9	20 - 27	Input
ACKN *)	Acknowledge - Negative going pulse from the printer indicates that the printer has received a character and is ready for the next data transfer.	10	28	Output
BUSY	Control signal from the printer. A high level indicates that the printer is unable to receive any more data.**)	11	29	Output
PE	Paper Empty - Control signal from the printer. This signal goes high when paper runs out, i.e. load upper or lower tractor, paper YESm.	12	--	Output
SELECT	Control signal from the printer. A high level indicates that the printer is **ON-LINE** and ready.	13	--	Output
LG	Logic Ground	14	--	
--	not used	15	--	
LG	Logic Ground	16	--	
CG	Chassis Ground	17	--	
VCC	+ 5 volt	18	--	
SG	Signal Ground	19 - 20	--	
INIT *)	Control signal from the host. Does not reset the prin- ter.	31	--	Input
_____ FAULT *)	Control signal from the printer. A low level indicates that the printer has been switched off, or the serial interface is active.	32	--	Output
LG	Logic Ground	33	--	
--	not used	34 - 35	--	
SELECT IN	Compatible mode (low) 1284 nibble mode (high)	36	30	Input

*) Overlined signal names indicate that the signal is true when the signal level is low.

**) When the interface buffer is full except for the last character, BUSY will not be reset. BUSY will be reset when buffer space is available again for least 512 characters in the interface buffer. While the printer is offline (Stop Mode) BUSY remains active until the printer enters the online state again.

IEEE Std 1284 Nibble mode including Device ID are supported.

The maximum throughput for data transfer is 42,000 characters per second.

Transmission Protocol

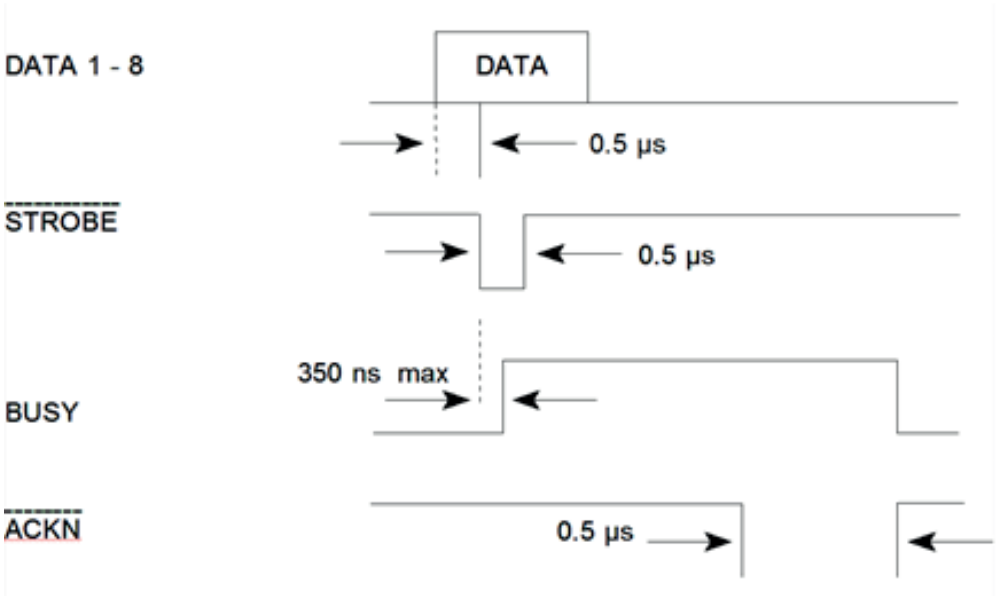
After Power-ON the PE (Paper Empty) signal is set to low level and the SELECT and the FAULT are set to high level.
The printer is now ON-LINE and ready to receive data.

Timing
The host sets a print/control character to the 8 data lines.

After a time delay of a minimum of 0.5 µs, the host sends a STROBE pulse of a minimum of 0.5 µs. When the data byte is accepted into the interface buffer the printer transmits a BUSY signal and an ACKN pulse.

The ACKN pulse informs the host that the data has been received and that the printer is ready to receive new data.
If the interface buffer is full except for the last character the BUSY is not reset in order to stop the data transfer from the host. The BUSY signal is only reset if space is available in the interface buffer for a minimum of 512 characters.
While the printer is offline, or a serial interface is active BUSY remains high and no ACKN is sent until the printer enters online state or the serial interface is deselected.

Timing Diagram



Shared Mode

In shared operation the interface buffer capacity is reduced by 256 bytes.

After Power-ON both the serial and the parallel interfaces are available for data transfer.

If a byte is first recognized by the serial interface the parallel interface is imme- diately disabled by the **BUSY** signal. The serial interface is now active and will operate, using the installed protocols.

If a byte is first recognized by the parallel interface either the **DTR** signal of the serial interface is set to **OFF** or **XOFF** is sent, depending on the protocol.

If the serial interface starts to receive data while the parallel interface is active, it is possible to receive 256 bytes of serial data. Any additional serial data will be lost.

When the interface buffer is completely empty of serial data, and no new data has been received by the serial interface for more than 10 seconds, both interfaces are available for data transfer again.

When the interface buffer is completely empty of parallel data and no data has been received by the parallel interface for more than 60 seconds, the 256 bytes of serial data will be processed. Afterwards, both interfaces are available for data transfer again.

Appendix B Resident Fonts

(only in englischer Sprache)

The Printer with the Personality Module (PM SER/PAR) provides the following resident fonts:

SCRIPT NLQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`abcdefghijklmnopqrstuvwxyzäöüß ÇüéâäàåçÇ

ƒáíóúñÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

SCRIPT LQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`abcdefghijklmnopqrstuvwxyzäöüß ÇüéâäàåçÇ

ƒáíóúñÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

OCR B LQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`abcdefghijklmnopqrstuvwxyzäöüß ÇüéâäàåçÇ

ƒáíóúñÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

OCR A LQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

YHabcdefghijklmnopqrstuvwxyzäöüß ÇüéâäàåçÇ

ƒáíóúñÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

ORATOR-C NLQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`ABCDEFGHIJKLMNOPQRSTUVWXYZÄÖÜß ÇÜÉÄÄÅÇÉ

ƒÁÍÓÚÑÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

ORATOR-C LQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`ABCDEFGHIJKLMNOPQRSTUVWXYZÄÖÜß ÇÜÉÄÄÅÇÉ

ƒÁÍÓÚÑÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

ORATOR NLQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`abcdefghijklmnopqrstuvwxyzäöüß ÇüéâäàåçÇ

ƒáíóúñÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

ORATOR LQ

§ !"#$%&'()*+,-./0123456789:;<=>?§ABCDEFGH

_`abcdefghijklmnopqrstuvwxyzäöüß ÇüéâäàåçÇ

ƒáíóúñÑªº¿⌐¬½¼¡«»

■αßΓπΣσμτΦΘΩδ∞øεΩ≡±≥≤⌠⌡÷≈°∙·√ⁿ²■

DATA LARGE

§ ! "#$%&'( )

/0123456789

?§ABCDEFGHI

OPQRSTUVWXY

Character Pitches

COURIER LQ, 20 CPI 0123456789ABCDEF

COURIER LQ, 18 CPI 0123456789ABCDEF

COURIER LQ, 17 CPI 0123456789ABCDEF

COURIER LQ, 15 CPI 0123456789ABCDEF

COURIER LQ, 12 CPI 0123456789ABCDEF

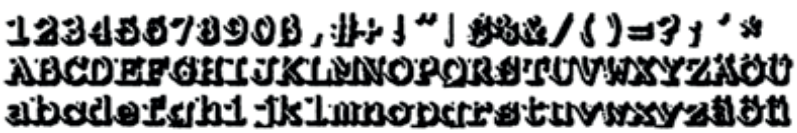
COURIER LQ, 10 CPI 0123456789ABC

COURIER LQ, proport. 0123456789ABCDEF

Character Attributes

COURIER outline

COURIER shadow



COURIER outline + shadow

COURIER

4xHeight 4xWidth outline

COURIER

4xHeight 4xWidth shadow

COURIER

4xHeight 4xWidth shadow + outline

COURIER LQ, 10 CPI

0123456789ABCDEF

COURIER LQ, 1x HEIGHT 2x WIDTH

0123456789ABCDEF

COURIER LQ, 1x HEIGHT 3x WIDTH

01234ABCDEF

COURIER LQ, 1x HEIGHT 4x WIDTH

01234ABC

COURIER LQ, 1x HEIGHT 4x WIDTH, BOLD

01234ABC

COURIER LQ, 2x HEIGHT 1x WIDTH

0123456789ABCDEF

COURIER LQ, 3x HEIGHT 1x WIDTH

0123456789ABCDEF

COURIER LQ, 4x HEIGHT 1x WIDTH

0123456789ABCDEF

COURIER LQ, 4x HEIGHT 1x WIDTH, BOLD

0123456789ABCDEF

COURIER LQ, 2x HEIGHT 2x WIDTH

0123456789ABCDEF

COURIER LQ, 3x HEIGHT 3x WIDTH

01234ABCDEF

COURIER LQ, 4x HEIGHT 4x WIDTH

01234ABC

COURIER LQ, 4x HEIGHT 4x WIDTH, BOLD

01234ABC

Appendix C Character Set Tables

C 1. ISO-Code Tables

Code Table ISO 8859-1

	2	3	4	5	6	7		A	B	C	D	E	F
0		0	@	P	`	p			°	À	Đ	à	ð
1	!	1	A	Q	a	q		¡	±	Á	Ñ	á	ñ
2	"	2	B	R	b	r		¢	²	Â	Ò	â	ò
3	#	3	C	S	c	s		£	³	Ã	Ó	ã	ó
4	$	4	D	T	d	t		¤	'	Ä	Ô	ä	ô
5	%	5	E	U	e	u		¥	µ	Å	Õ	å	õ
6	&	6	F	V	f	v		|	¶	Æ	Ö	æ	ö
7	*	7	G	W	g	w		§	·	Ç	×	ç	÷
8	(	8	H	X	h	x		(	¸	È	Ø	è	ø
9	)	9	I	Y	i	y		©	¹	É	Ù	é	ù
A	*	:	J	Z	j	z		a	o	Ê	Ú	ê	ú
B	+	;	K	[	k	{		«	»	Ë	Û	ë	û
C	'	<	L	\	l	|		¬	¼	Ì	Ü	ì	ü
D	-	=	M	]	m	}		–	½	Í	Ý	í	ý
E	.	>	N	^	n	~		®	¾	Î	Þ	î	þ
F	/	?	O	_	o			G	¿	Ï	ß	ï	ÿ

Code Table ISO 8859-15

	2	3	4	5	6	7		A	B	C	D	E	F
0		0	@	P	`	p			Ɛ	À	Đ	à	ð
1	!	1	A	Q	a	q		¡	±	Á	Ñ	á	ñ
2	‖	2	B	R	b	r		¢	²	Â	Ò	â	ò
3	#	3	C	S	c	s		£	³	Ã	Ó	ã	ó
4	$	4	D	T	d	t		€	Ž	Ä	Ô	ä	ô
5	%	5	E	U	e	u		¥	F	Å	Õ	å	õ
6	&	6	F	V	f	v		Š	¶	Æ	Ö	æ	ö
7	*	7	G	W	g	w		§	·	Ç	×	ç	÷
8	(	8	H	X	h	x		š	ž	È	Ø	è	ø
9	)	9	I	Y	i	y		©	¹	É	Ù	é	ù
A	*	:	J	Z	j	z		a	o	Ê	Ú	ê	ú
B	+	;	K	[	k	{		*	+	Ë	Û	ë	û
C	´	<	L	\	l	|		¬	Œ	Ì	Ü	ì	ü
D	-	=	M	]	m	}		–	œ	Í	Ý	í	ý
E	.	>	N	^	n	~		®	Ÿ	Î	Þ	î	þ
F	/	?	O	_	o			G	¿	Ï	ß	ï	ÿ

Code Table ISO 8859-5

	2	3	4	5	6	7		A	B	C	D	E	F
0		0	@	P	`	p			А	Р	а	р	№
1	!	1	A	Q	a	q		Ё	Б	С	б	с	ё
2	"	2	B	R	b	r		Ђ	В	Т	в	т	ъ
3	#	3	C	S	c	s		Ѓ	Г	У	г	у	ѓ
4	$	4	D	T	d	t		Є	Д	Ф	д	ф	є
5	%	5	E	U	e	u		S	Е	Х	е	х	s
6	&	6	F	V	f	v		І	Ж	Ц	ж	ц	і
7	*	7	G	W	g	w		Ї	З	Ч	з	ч	ї
8	(	8	H	X	h	x		J	И	Ш	и	ш	j
9	)	9	I	Y	i	y		Љ	Й	Щ	й	щ	љ
A	*	:	J	Z	j	z		Њ	К	Ъ	к	ъ	њ
B	+	;	K	[	k	{		Ћ	Л	Ы	л	ы	ћ
C	'	<	L	\	l	|		Ќ	М	Ь	м	ь	ќ
D	-	=	M	]	m	}			Н	Э	н	э	§
E	.	>	N	^	n	~		Ў	О	Ю	о	ю	ў
F	/	?	O	_	o			Џ	П	Я	п	я	

Code Table ISO 8859-9

	2	3	4	5	6	7		A	B	C	D	E	F
0		0	@	P	'	p			°	À	Ğ	à	ğ
1	!	1	A	Q	a	q		¡	±	Á	Ñ	á	ñ
2	1	2	B	R	b	r		¢	²	Â	Ò	â	ò
3	#	3	C	S	c	s		£	³	Ã	Ó	ã	ó
4	$	4	D	T	d	t		¤	'	Ä	Ô	ä	ô
5	%	5	E	U	e	u		¥	µ	Å	Õ	å	õ
6	&	6	F	V	f	v		¦	¶	Æ	Ö	æ	ö
7	*	7	G	W	g	w		§	!	Ç	×	ç	÷
8	(	8	H	X	h	x		(	2	È	Ø	è	ø
9	)	9	I	Y	i	y		©	¹	É	Ù	é	ù
A	*	:	J	Z	j	z		a	o	Ê	Ú	ê	ú
B	+	;	K	[	k	{		«	»	Ë	Û	ë	û
C	'	<	L	\	l	|		¬	¼	Ì	Ü	ì	ü
D	-	=	M	]	m	}		–	½	Í	İ	í	i
E	.	>	N	^	n	~		®	¾	Î	Ş	î	ş
F	/	?	O	_	o			–	¿	Ï	ß	ï	

C 2. IBM Code Pages

Code Table IBM All Character Set

	2	3	4	5	6	7		A	B	C	D	E	F
0		0	@	P	'	p			°	À	Ğ	à	ğ
1	!	1	A	Q	a	q		¡	±	Á	Ñ	á	ñ
2	1	2	B	R	b	r		¢	²	Â	Ò	â	ò
3	#	3	C	S	c	s		£	³	Ã	Ó	ã	ó
4	$	4	D	T	d	t		¤	'	Ä	Ô	ä	ô
5	%	5	E	U	e	u		¥	µ	Å	Õ	å	õ
6	&	6	F	V	f	v		¦	¶	Æ	Ö	æ	ö
7	*	7	G	W	g	w		§	!	Ç	×	ç	÷
8	(	8	H	X	h	x		(	2	È	Ø	è	ø
9	)	9	I	Y	i	y		©	¹	É	Ù	é	ù
A	*	:	J	Z	j	z		a	o	Ê	Ú	ê	ú
B	+	;	K	[	k	{		«	»	Ë	Û	ë	û
C	'	<	L	\	l	|		¬	¼	Ì	Ü	ì	ü
D	-	=	M	]	m	}		–	½	Í	İ	í	i
E	.	>	N	^	n	~		®	¾	Î	Ş	î	ş
F	/	?	O	_	o			–	¿	Ï	ß	ï	

Applicable for Code Table IBM Set 1 and 2

Code Table IBM SET 1

National Version = USA

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	NUL		á	▒	└	╨	α	≡
1		DC1	!	1	A	Q	a	q		DC1	í	▒	┴	╤	β	±
2		DC2	”	2	B	R	b	r		DC2	ó	▓	┬	╥	Γ	≥
3		DC3	#	3	C	S	c	s		DC3	ú	|	├	╙	π	≤
4		DC4	$	4	D	T	d	t		DC4	ñ	┤	–	╘	Σ	⌠
5			%	5	E	U	e	u			Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v			ª	╢	╞	╓	µ	÷
7	BEL		’	7	G	W	g	w	BEL		º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	╕	╚	╪	Φ	°
9	HT		)	9	I	Y	i	y	HT		⌐	╣	╔	┘	Θ	·
A	LF		*	:	J	Z	j	z	LF		¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	╗	╦	█	δ	√
C	FF		´	<	L	\	l	|	FF		¼	╝	╠	▄	∞	ⁿ
D	CR		-	=	M	]	m	}	CR		¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	SO		«	╛	╬	▐	ε	■
F	SI		/	?	O	_	o		SI		»	┐	╧	▀	∩	SP

Code Table IBM SET 1

National Versions

	Character Code (Hex)											
	23	**24**	**40**	**5B**	**5C**	**5D**	**5E**	**60**	**7B**	**7C**	**7D**	**7E**
1: USA	#	$	@	[	\	]	^	`	{	|	}	~
2: FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨
3: GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
4: U.K.	£	$	@	[	\	]	^	`	{	|	}	~
5: DENMARK	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
6: SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
7: ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
8: SPAIN	Pts	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
9: YESPAN	#	$	@	[	¥	]	^	`	{	|	}	~
10: NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11: DENMARK 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
12: SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
13: LATIN AM.	#	$	á	¡	Ñ	¿	é	Ü	í	ñ	ó	ú
14: TURKEY	#	ī	Ī	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü

Code Table IBM SET 2

National Version = USA

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1		DC1	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	DC3	#	3	C	S	c	s	â	ô	ú	|	├	╙	π	≤
4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	┤	–	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠		&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	BEL		'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	HT		)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	·
A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	FF		´	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	CR		-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	Ä	Pts	«	╛	╬	▐	ε	■
F	SI		/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	SP

Code Table IBM SET 2

National Versions

	Character Code (Hex)													
	23	**24**	**40**	**5B**	**5C**	**5D**	**5E**	**60**	**7B**	**7C**	**7D**	**7E**	**9B**	**9D**
1: USA	#	$	@	[	\	]	^	`	{	|	}	~	¢	¥
2: FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨	¢	¥
3: GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß	¢	¥
4: U.K.	£	$	@	[	\	]	^	`	{	|	}	~	¢	¥
5: DENMARK	#	$	@	[	\	]	^	`	{	|	}	~	ø	Ø
6: SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	¢	¥
7: ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì	¢	¥
8: SPAIN	Pts	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~	¢	¥
9: YESPAN	#	$	@	[	¥	]	^	`	{	|	}	~	¢	¥
10: NORWAY	#	$	@	[	\	]	^	`	{	|	}	~	ø	Ø
11: DEMARK 2	#	$	@	[	\	]	^	`	{	|	}	~	ø	Ø
12: SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú	¢	¥
13: LATIN AM.	#	$	á	¡	Ñ	¿	é	Ü	í	ñ	ó	ú	¢	¥
14: TURKEY	#	ī	Ī	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü	¢	¥

C.3 Code Table IBM Code Page

Code Page	Countries
Code Page 437	• USA
Code Page 850	• Germany, • UK, • Denmark, • Sweden, • Italy, • Spain, • YESpan, • Latin Am., • Turkey
Code Page 858	• Germany, • UK, • Denmark, • Sweden, • Italy, • Spain, • YESpan, • Latin Am, • Turkey; inc. € Symbol
Code Page 860	• Portugal
Code Page 863	• Canada, • French
Code Page 865	• Norway
Code Page 857	• Turkey

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	∅	▸	SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	☺	◂	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	_	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	●	↨	’	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	·
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	´	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	Pts	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	SP

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	ø	▸	SP	0	@	P	`	p	Ç	É	á	▒	└	ð	Ó	-
1	☺	◂	!	1	A	Q	a	q	ü	æ	í	▒	┴	Đ	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	=
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	í	Õ	§
6	♠	_	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
7	•	↨	’	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	ō
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	°
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	♀	∟	´	<	L	\	l	|	î	£	¼	╝	╠	▄	ý	³
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	|	Ý	²
E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	ì	¯	■
F	☼	▼	/	?	O	_	o		Å	ƒ	»	┐	¤	■	'	SP

IBM Code Page 858

€ sign implemented on HEX D5

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	ø	▸	SP	0	@	P	`	p	Ç	É	á	░	└	ð	Ó	-
1	☺	◂	!	1	A	Q	a	q	ü	æ	í	▒	┴	Đ	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	=
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	€	Õ	§
6	♠	_	&	6	F	V	f	v	å	û	ª	Â	ã	Ī	µ	÷
7	•	↨	’	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	˘
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	°
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	♀	∟	´	<	L	\	l	|	î	£	¼	╝	╠	▄	ý	³
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	|	Ý	²
E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	ì	¯	■
F	☼	▼	/	?	O	_	o		Å	ƒ	»	┐	¤	■	'	SP

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	∅	▸	SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◂	!	1	A	Q	a	q	ü	À	í	▒	┴	╤	β	±
2	☻	↕	"	2	B	R	b	r	é	È	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ã	õ	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	_	&	6	F	V	f	v	Á	Ú	ª	╢	╞	╓	µ	÷
7	●	↨	’	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	Ì	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	Ê	Õ	Ò	╣	╔	┘	Θ	·
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	í	¢	½	╗	╦	█	δ	√
C	♀	∟	´	<	L	\	l	|	ô	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	Ù	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ã	₧	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o		Â	Ó	»	┐	╧	▀	∩	SP

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	ø	▸	SP	0	@	P	`	p	Ç	É	|	▒	└	╨	α	≡
1	☺	◂	!	1	A	Q	a	q	ü	È	'	▒	┴	╤	β	±
2	☻	↕	"	2	B	R	b	r	é	Ê	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	|	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	Â	Ë	¨	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	Ï	¸	╡	┼	╒	σ	⌡
6	♠	_	&	6	F	V	f	v	¶	û	³	╢	╞	╓	µ	÷
7	●	↨	’	7	G	W	g	w	ç	ù	¯	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	¤	Î	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ô	⌐	╣	╔	┘	Θ	·
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	´	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	=	Ù	¾	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	À	Û	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o		§	ƒ	»	┐	╧	▀	∩	SP

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	∅	▸	SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◂	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	_	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	•	↨	’	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	·
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	δ	√
C	♀	∟	´	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	Pt	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o		Å	ƒ	¤	┐	╧	▀	∩	SP

	2	3	4	5	6	7		A	B	C	D	E	F
0		0	@	P	'	p		á	░	└	o	Ó	-
1	!	1	A	Q	a	q		í	▒	┴	a	ß	±
2	"	2	B	R	b	r		ò	▓	┬	Ê	Ô	
3	#	3	C	S	c	s		ú	│	├	Ë	Ò	¾
4	$	4	D	T	d	t		ñ	┤	)	È	õ	¶
5	%	5	E	U	e	u		Ñ	Á	┼	€	Õ	§
6	&	6	F	V	f	v		Ğ	Â	ã	Í	µ	÷
7	‘	7	G	W	g	w		ğ	À	Ã	Î		¸
8	(	8	H	X	h	x		¿	©	╚	Ï	×	°
9	)	9	I	Y	i	y		®	╣	╔	┘	Ú	¨
A	0	:	J	Z	j	z		¬	║	╩	┌	Û	•
B	+	;	K	[	k	{		½	╗	╦	█	Ù	¹
C	,	<	L	\	«	|		¼	╝	╠	▄	ì	³
D	-	=	M	]	m	}		ì	¢	═	¦	ÿ	²
E	.	>	N	^	n	~		«	¥	╬	Ì	¯	■
F	/	?	O	_	o			»	,	¤	▀	´	

C 4. EPSON Extended Graphics Character Table

EPSON Character Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1			!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2			"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3			#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4			$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5		§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7			’	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8			(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9			)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	·
A			*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B			+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C			´	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D			-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E			.	>	N	^	n	~	Ä	Pts	«	╛	╬	▐	ε	■
F			/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	SP

	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
1: USA	#	$	@	[	\	]	^	`	{	|	}	~
2: FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨
3: GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
4: U.K.	£	$	@	[	\	]	^	`	{	|	}	~
5: DENMARK	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
6: SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
7: ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
8: SPAIN	Pts	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
9: YESPAN	#	$	@	[	¥	]	^	`	{	|	}	~
10: NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11: DENMARK 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
12: SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
13: LATIN AM.	#	$	á	¡	Ñ	¿	é	Ü	í	ñ	ó	ú
14: TURKEY	#	ī	Ī	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü
15: LEGAL	#	$	§	°	'	"	¶	`	©	®	†	™

EPSON Italic Character Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p			*SP*	*0*	*@*	*P*	*`*	*p*
1			!	1	A	Q	a	q			*!*	*1*	*A*	*Q*	*a*	*q*
2			"	2	B	R	b	r			*"*	*2*	*B*	*R*	*b*	*r*
3			#	3	C	S	c	s			*#*	*3*	*C*	*S*	*c*	*s*
4			$	4	D	T	d	t			*$*	*4*	*D*	*T*	*d*	*t*
5			%	5	E	U	e	u			*%*	*5*	*E*	*U*	*e*	*u*
6			&	6	F	V	f	v			*&*	*6*	*F*	*V*	*f*	*v*
7			’	7	G	W	g	w			*’*	*7*	*G*	*W*	*g*	*w*
8			(	8	H	X	h	x			*(*	*8*	*H*	*X*	*h*	*x*
9			)	9	I	Y	i	y			*)*	*9*	*I*	*Y*	*i*	*y*
A			*	:	J	Z	j	z			*	*:*	*J*	*Z*	*j*	*z*
B			+	;	K	[	k	{			+	*;*	*K*	*[*	*k*	*{*
C			´	<	L	\	l	|			´	<	*L*	\	*l*	|
D			-	=	M	]	m	}			-	=	*M*	*]*	*m*	*}*
E			.	>	N	^	n	~			.	>	*N*	^	*n*	~
F			/	?	O	_	o				*/*	*?*	*O*	_	*o*	

NV EPSON Italic Character Table (part 1)

	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
1: USA	#	$	@	[	\	]	^	`	{	|	}	~
2: FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨
3: GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
4: U.K.	£	$	@	[	\	]	^	`	{	|	}	~
5: DENMARK	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
6: SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
7: ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
8: SPAIN	Pts	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
9: YESPAN	#	$	@	[	¥	]	^	`	{	|	}	~
10: NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11: DENMARK 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
12: SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
13: LATIN AM.	#	$	á	¡	Ñ	¿	é	Ü	í	ñ	ó	ú
14: TURKEY	#	ī	Ī	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü
15: LEGAL	#	$	§	°	'	"	¶	`	©	®	†	™

NV EPSON Italic Character Table (part 2)

	A3	A4	C0	DB	DC	DD	DE	E0	FB	FC	FD	FE
1: USA	#	$	@	[	\	]	^	`	{	|	}	~
2: FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨
3: GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
4: U.K.	£	$	@	[	\	]	^	`	{	|	}	~
5: DENMARK	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
6: SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
7: ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
8: SPAIN	Pts	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
9: YESPAN	#	$	@	[	¥	]	^	`	{	|	}	~
10: NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11: DENMARK 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
12: SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
13: LATIN AM.	#	$	á	¡	Ñ	¿	é	Ü	í	ñ	ó	ú
14: TURKEY	#	ī	Ī	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü
15: LEGAL	#	$	§	°	'	"	¶	`	©	®	†	™

Code Table OCR-A

	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	┤	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	`	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	¬	<	L	\	l	|
D	CR	GR	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	⌠
F	SI	US	/	?	O	┴	o	

C.5 Code Pages for the Eastern European Countries (EE)

CODEPAGE 437 Greek

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	A	P	ι	░	└	╨	ω	’Ω
1	!	1	A	Q	a	q	B	Σ	κ	▒	┴	╤	ά	±
2	"	2	B	R	b	r	Γ	T	λ	▓	┬	╥	έ	≥
3	#	3	C	S	c	s	Δ	Y	μ	│	├	╙	ή	≤
4	$	4	D	T	d	t	E	Φ	ν	┤	─	╘	ϊ	⌠
5	%	5	E	U	e	u	Z	X	ξ	╡	┼	╒	ί	⌡
6	&	6	F	V	f	v	H	Ψ	ο	╢	╞	╓	ό	÷
7	’	7	G	W	g	w	Θ	Ω	π	╖	╟	╫	ύ	≈
8	(	8	H	X	h	x	I	α	ρ	╕	╚	╪	ϋ	°
9	)	9	I	Y	i	y	K	β	σ	╣	╔	┘	ώ	£
A	*	:	J	Z	j	z	Λ	γ	ς	║	╩	┌	’A	¥
B	+	;	K	[	k	{	M	δ	τ	╗	╦	█	’E	√
C	´	<	L	\	l	|	N	ε	υ	╝	╠	▄	’H	ⁿ
D	-	=	M	]	m	}	Ξ	ζ	φ	╜	═	▌	’I	²
E	.	>	N	^	n	~	O	η	χ	╛	╬	▐	’O	■
F	/	?	O	_	o		Π	θ	ψ	┐	╧	▀	’Y	

CODEPAGE 851 Greek

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	Ç	΄Ι	ϊ	░	└	Τ	ζ	-
1	!	1	A	Q	a	q	ü		ΐ	▒	┴	Υ	η	±
2	"	2	B	R	b	r	é	΄Ο	ό	▓	┬	Φ	θ	∪
3	#	3	C	S	c	s	â	ô	ύ	│	├	Χ	ι	ϕ
4	$	4	D	T	d	t	ä	ö	Ά	┤	─	Ψ	κ	Χ
5	%	5	E	U	e	u	à	΄Υ	Β	Κ	┼	Ω	λ	§
6	&	6	F	V	f	v	Α	û	Γ	Λ	Π	α	μ	Ψ
7	'	7	G	W	g	w	ç	ù	Δ	Μ	Ρ	β	ν	˙
8	(	8	H	X	h	x	ê	΄Ω	Ε	Ν	╚	γ	ξ	°
9	)	9	Ι	Y	i	y	ë	Ö	Ζ	╣	╔	┘	ο	¨
A	*	:	J	Z	j	z	è	Ü	Η	║	╩	┌	π	ω
B	+	;	K	[	k	{	ï	ά	½	╗	╦	█	ρ	ΰ
C	´	<	L	\	l	|	î	£	Θ	╝	╠	▄	σ	ΰ
D	-	=	M	]	m	}	΄Ε	έ	Ι	Ξ	═	ζ	ς	ώ
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	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	Ç	É		°	ΐ	Π	ű	π
1	!	1	A	Q	a	q	ü	æ	΄	±	A	P	α	ρ
2	"	2	B	R	b	r	é	Æ	’	²	B		β	ς
3	#	3	C	S	c	s	â	ô	£	³	Γ	Σ	γ	σ
4	$	4	D	T	d	t	ä	ö		΄	Δ	T	δ	τ
5	%	5	E	U	e	u	à	ò		□	E	Y	ε	υ
6	&	6	F	V	f	v	å	û	¦	’A	Z	Φ	ζ	φ
7	’	7	G	W	g	w	ç	ù	§	•	H	X	η	χ
8	(	8	H	X	h	x	ê	ÿ	¨	’E	Θ	Ψ	θ	ψ
9	)	9	I	Y	i	y	ë	Ö	©	’H	I	Ω	ι	ω
A	*	:	J	Z	j	z	è	Ü	Ί	’I	K	Ϊ	κ	ϊ
B	+	;	K	[	k	{	ï	¢	«	»	Λ	Ÿ	λ	ü
C	΄	<	L	\	l	|	î	£	¬	’O	M	ά	μ	ό
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	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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1	!	1	A	Q	a	q	Ђ	Љ	А	▒	⊥	Л	р	ы
2	"	2	B	R	b	r	ѓ	њ	б	▒	0	м	Р	Ы
3	#	3	C	S	c	s	Ѓ	Њ	Б	│	├	М	с	з
4	$	4	D	T	d	t	ё	ћ	ц	┤	—	н	С	З
5	%	5	E	U	e	u	Ё	Ћ	Ц	х	┼	Н	т	ш
6	&	6	F	V	f	v	є	ќ	д	Х	к	о	Т	Ш
7	*	7	G	W	g	w	Є	Ќ	Д	и	К	О	у	э
8	(	8	H	X	h	x	s	ў	е	И	╚	п	У	Э
9	)	9	I	Y	i	y	S	Ў	Е	╣	╔	-	ж	щ
A	*	:	J	Z	j	z	i	ц	ф	║	╩	г	Ж	Щ
B	+	;	K	[	k	{	I	Ц	Ф	╗	╦	▉	в	ч
C	'	<	L	\	l	|	ї	ю	г	╝	╠	▄	В	Ч
D	-	=	M	]	m	}	Ї	Ю	Г	и	═	П	ь	
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F	/	?	O	_	o		J	Ъ	»	,	¤	▉	№	

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	А	Р	а	▒	└	╨	р	Ё
1	!	1	A	Q	a	q	Б	С	б	▒	┴	╤	с	ё
2	”	2	B	R	b	r	В	Т	в	▓	┬	╥	т	Є
3	#	3	C	S	c	s	Г	У	г	│	├	╙	у	є
4	$	4	D	T	d	t	Д	Ф	д	┤	─	╘	ф	Ї
5	%	5	E	U	e	u	Е	Х	е	╡	┼	╒	х	ї
6	&	6	F	V	f	v	Ж	Ц	ж	╢	╞	╓	ц	Ў
7	’	7	G	W	g	w	З	Ч	з	╖	╟	╫	ч	ў
8	(	8	H	X	h	x	И	Ш	и	╕	╚	╪	ш	°
9	)	9	I	Y	i	y	Й	Щ	й	╣	╔	┘	щ	●
A	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ь	●
B	+	;	K	[	k	{	Л	Ы	л	╗	╦	█	ы	√
C	´	<	L	\	l	|	М	Ь	м	╝	╠	▄	ъ	№
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1	!	1	A	Q	a	q		Ϊ	ï	▒	┴	Υ	η	±
2	"	2	B	R	b	r		’Ο	ό	▓	┬	Φ	θ	υ
3	#	3	C	S	c	s			ύ	│	├	Χ	ι	φ
4	$	4	D	T	d	t			Α	┤	─	Ψ	κ	χ
5	%	5	E	U	e	u		’Υ	Β	Κ	┼	Ω	λ	§
6	&	6	F	V	f	v	Ά	Ϋ	Γ	Λ	Π	α	μ	ψ
7	’	7	G	W	g	w		©	Δ	Μ	Ρ	β	ν	∴
8	(	8	H	X	h	x	●	’Ω	Ε	Ν	╚	γ	ξ	°
9	)	9	I	Y	i	y	¬	²	Ζ	╣	╔	┘	ο	¨
A	*	:	J	Z	j	z	¦	³	Η	║	╩	┌	π	ω
B	+	;	K	[	k	{	‘	ά	½	╗	╦	█	ρ	ϋ
C	´	<	L	\	l	|	´	£	Θ	╝	╠	▄	σ	ύ
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F	/	?	O	_	o		’Η	ί	»	┐	Σ	▀	´	

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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1	!	1	A	Q	a	q	ü	Ĺ	í	▒	┴	Đ	ß	˝
2	"	2	B	R	b	r	é	Ľ	ó	▓	┬	Ď	ô	˛
3	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ń	ˇ
4	$	4	D	T	d	t	ä	ö	Ą	┤	─	ď	ń	˘
5	%	5	E	U	e	u	ů	Ľ	ą	Á	┼	Ň	ň	§
6	&	6	F	V	f	v	ć	ľ	Ž	Â	Ă	í	Š	÷
7	’	7	G	W	g	w	ç	Ś	ž	Ě	ă	î	š	0
8	(	8	H	X	h	x	ł	ś	Ę	Ş	╚	ě	Ŕ	°
9	)	9	I	Y	i	y	ë	Ö	ę	╣	╔	┘	Ú	¨
A	*	:	J	Z	j	z	Ő	Ü	¬	║	╩	┌	ŕ	·
B	+	;	K	[	k	{	ő	Ť	ź	╗	╦	█	Ű	ű
C	´	<	L	\	l	|	î	ť	Č	╝	╠	▄	ý	Ř
D	-	=	M	]	m	}	Ź	Ł	ş	Ż	□	Ţ	Ý	ř
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	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	Č	É	á	▒	└	╨	α	≡
1	!	1	A	Q	a	q	ü	ž	í	▒	┴	╤	β	±
2	"	2	B	R	b	r	é	Ž	ó	▓	┬	╥	Γ	≥
3	#	3	C	S	c	s	ď	ô	ú	│	├	╙	∏	≤
4	$	4	D	T	d	t	ä	ö	ň	┤	─	╘	∑	⌠
5	%	5	E	U	e	u	Ď	ó	Ň	╡	┼	╒	σ	⌡
6	&	6	F	V	f	v	Ť	ů	Ů	╢	╞	╓	µ	÷
7	’	7	G	W	g	w	č	Ú	ô	╖	╟	╫	τ	≈
8	(	8	H	X	h	x	ě	ý	š	╕	╚	╪	Φ	°
9	)	9	I	Y	i	y	Ě	Ö	ř	╣	╔	┘	Θ	•
A	*	:	J	Z	j	z	Ĺ	Ü	ŕ	║	╩	┌	Ω	•
B	+	;	K	[	k	{	Í	Š	Ŕ	╗	╦	▉	δ	√
C	´	<	L	\	l	|	ľ	Ľ	¼	╝	╠	▄	ω	ⁿ
D	-	=	M	]	m	}	Í	Ý	§	╜	□	▌	ø	²
E	.	>	N	^	n	~	Ä	Ř	«	╛	╬	▐	ε	■
F	/	?	O	_	o		Á	t`	»	┐	╧	▀	∩	

ISO LATIN 2

	2	3	4	5	6	7		A	B	C	D	E	F
0	SP	0	@	P	`	p			°	Ŕ	Đ	ŕ	ð
1	!	1	A	Q	a	q		Ą	ą	Á	Ń	á	ń
2	"	2	B	R	b	r		˘	˛	Â	Ň	â	ň
3	#	3	C	S	c	s		Ł	ł	Ă	Ó	ă	ó
4	$	4	D	T	d	t		¤	'	Ä	Ô	ä	ô
5	%	5	E	U	e	u		Ľ	ľ	Ĺ	Ő	ľ	ő
6	&	6	F	V	f	v		Ś	ś	Ć	Ö	ć	ö
7	’	7	G	W	g	w		§	ˇ	Ç	x	ç	÷
8	(	8	H	X	h	x		¨	¸	Č	Ř	č	ř
9	)	9	I	Y	i	y		Š	š	É	Ů	é	ů
A	*	:	J	Z	j	z		Ş	ş	Ę	Ú	ę	ú
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	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	Ç	Ę	ź	▒	└	╨	α	≡
1	!	1	A	Q	a	q	ü	ę	Ż	▒	┴	╤	β	±
2	"	2	B	R	b	r	é	ł	ó	▓	┬	╥	Γ	≥
3	#	3	C	S	c	s	â	ô	Ó	│	├	╙	π	≤
4	$	4	D	T	d	t	ä	ö	ń	┤	─	╘	∑	⌠
5	%	5	E	U	e	u	à	Ć	Ń	╡	┼	╒	σ	⌡
6	&	6	F	V	f	v	ą	û	ź	╢	╞	╓	µ	÷
7	’	7	G	W	g	w	ç	ù	ż-	╖	╟	╫	τ	≈
8	(	8	H	X	h	x	ê	Ś	¿	╕	╚	╪	Φ	°
9	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	●
A	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	●
B	+	;	K	[	k	{	ï	zł	½	╗	╦	█	δ	√
C	´	<	L	\	l	|	î	Ł	¼	╝	╠	▄	∞	ⁿ
D	-	=	M	]	m	}	ć	Y-	i	╜	-	▌	ø	²
E	.	>	N	^	n	~	Ä	ś	«	╛	╬	▐	ε	■
F	/	?	O	_	o		Ą	ƒ	»	┐	╧	▀	∩	

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	#	3	C	S	c	s	â	ő	ú	│	├	╙	π	≤
4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	∑	⌠
5	%	5	E	U	e	u	à	ó	Ñ	╡	┼	╒	σ	⌡
6	&	6	F	V	f	v	å	ű	ª	╢	╞	╓	µ	÷
7	’	7	G	W	g	w	ç	Ú	Ő	╖	╟	╫	τ	≈
8	(	8	H	X	h	x	ê	Ü	¿	╕	╚	╪	Φ	°
9	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	●
A	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	●
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C.6 Code Pages for the Eastern European Countries (EE2)

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Appendix D IBM ProPrinter (TM) Quick Reference

This appendix contains basic information on the IBM ProPrinter XL 24 Emulation commands supported in the Printer:

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Characters used in control functions appear in monospaced type. Table 1 explains some of the conventions used.

A pair of numbers separated by a slash (/) character indicates Column/Row notation. This notation refers to the location of a character in a standard code table, such as ASCII. (example: 1/B = 1B is the hex-code for Escape)

Spaces appear between characters in sequence for clarity; they are not part of the format.

At the end of this chapter you will find a listing of the IBM ProPrinter Emulation commands classified by Hex Code and a Hex - Decimal conversion table.

The following conventions are used in the command listings:

Table 1 Conventions

ESC	Escape (1/B), introduces an escape sequence
Pn	Numeric parameter, or number of units that specify a distance or quantity pertaining to the escape sequence, control function or control string. Accepted values are 0...9999, may be preceded by + or -. If the parameter is in normal notation like “200” the programming in hex- code is according to a ASCII table. (“200” = 32,30,30 in hex). If the parameter must be programmed in hex-code the notation is with a slash. (1/A = 1A in hex-code)
v1...vn	A series of parameters pertaining to the escape sequence, control function or control string.
SP	Is standing for Space (hex 20)

(Native Command)

additional PSi command usable for the original emulation. Controls PSi specific printer features that are not present in the original printer.

Table 2: Control Codes

Column/Row	Mnemonic	Function
0/0	**NUL**	***Null***
0/8	**BS**	***Backspace***
0/9	**HT**	***Horizontal Tab***
0/A	**LF**	***Line Feed***
0/B	**VT**	***Vertical Tab***
0/C	**FF**	***Form Feed***
0/D	**CR**	***Carriage Return***
0/E	**SO**	***Double Width Printing By Line***
0/F	**SI**	***Condensed Printing (17.1 cpi)***
1/1	**DC1**	***Select Printer***
1/2	**DC2**	***Select Pica (10 cpi)***
1/3	**DC3**	***Buffer Data Flow Control***
1/4	**DC4**	***Cancel Double Width Printing By Line***
1/8	**CAN**	***Cancel Buffer***
1/B	**ESC**	***Initiate Escape Sequence***
2/0	**SP**	***Space***
7/F	**DEL**	***Delete***
1/B 5/1 2/3	**ESC Q #**	***Deselect Printer***
1/B 5/1 2/4	**ESC Q $**	***Deselect Printer***

Table 3: Vertical Form Handling

Escape Sequence	Mnemonic	Function
ESC 0		***Set Line Space to 1/8”***
ESC 1		***Set Line Space to 7/72”***
ESC 2		***Start Variable Line Space***
ESC 4		***Set Top of Form***
ESC 5 P1		***Carriage Return Function*** P1 = 1 or 0/1: select CR + LF P1 = 0 or 0/0: cancel CR
ESC A P1		***Set Line Space*** P1 = P1/72” lpi (non AGM) P1 = P1/60” lpi (AGM) (P1 = 0/1...5/5) ***Note:*** Default = 12/72” or 6 lpi
ESC B NUL		***Clear all Vertical Tabs***
ESC B P1 P2 . . . P64 NUL		***Set Vertical Tabs (Pn = 0/1...F/F)***
ESC C P1		***Set Form Length in Lines (P1 = 0/1...7/F)***
ESC C NUL P1		***Set Form Length in Inches (P1 = 0/1...1/6)***
ESC N P1		***Set Automatic Perforation Skip*** P1: number of lines from bottom of paper to skip. (P1 = 0/0...F/F)
ESC O		Cancel Automatic Perforation Skip
ESC [\ EOT NUL NUL NUL P1 NUL		***Set Line Space Unit*** EOT = 0/4 P1 = B/4 : select 1/180” P1 = D/8 : select 1/216” P1 = 0/0 : setting remains unchanged
ESC]		***Reverse Line Feed***
ESC [> P1 ; P2 ; P3 ; P4 s *(Native Command)*	**SPSIF**	***Select Paper Source and Insert Form*** (>), Select Paper Source,Print Gap, Paper Exit, Cut Mode.

Escape Sequence	Mnemonic	Function
ESC [> P1 s *(Native Command)*	**SPS**	***Select Paper Source:*** P1 = 0 Manual Feed [2]) P1 = 1 ASF, Bin 1 [1]) P1 = 2 ASF, Bin 2 [1]) P1 = 3 ASF, Bin 3 [1]) P1 = 6 upper Tractor P1 = 7 Tractor Feed (lower Tractor) P1 = 8 AFS, Bins 1 or 2 [1]) P1 = 9 ASF, Bins 2 or 3 [1]) P1 = 10 ASF, Bins 1 or 2 or 3 [1]) P1 = 15 upper and lower Tractor [1]) only for printer **PP 806**; [2]) not for **PP 809**
ESC [> ;P2 s *(Native Command)*	**AGC**	***Print Gap:*** P2 = 0 : Automatic Gap Control P2 = 1 Print Gap for 1-ply copy P2 = 2 Print Gap for 2-ply copies P2 = 3 Print Gap for 3-ply copies P2 = 4 Print Gap for 4-ply copies P2 = 5 Print Gap for 5-ply copies P2 = 6 Print Gap for 6-ply copies P2 = 7 Print Gap for 7-ply copies P2 = 8 Print Gap for 8-ply copies [4]) P2 = 9 Print Gap for 9-ply copies [4]) [4]) only for printer PP 803
ESC [> ;;P3 s *(Native Command)*	**PE**	***Paper Exit:*** P3 = 0 reserved (no change) P3 = 1 or 2 Paper Exit Front (manual) P3 = 3 : Batch output (rear), default
ESC [> ;;;P4 s *(Native Command)*	**CM**	***Cut Mode:*** P4 = 0 Cut Mode off P4 = 1 Cut Mode On P4 = 2 Cut on actual Line (cutting edge is approximate 4 mm above the base of the actual line) [3]) only active if CUT DEVICE is installed and activated.

Table 4: Horizontal Form Handling and Printing Modes

Escape Sequence	Mnemonic	Function
ESC :		***Select Elite (12 cpi)***
ESC - P1		***Cancel / Select Underline*** P1 = 0/0 cancel Underline Printing P1 = 0/1 set Underline Printing
ESC _ P1		***Cancel / Select Overline Printing*** P1 = 0/0 cancel Overline Printing P1 = 0/1 set Overline Printing
ESC [@ *EOT NUL NUL NUL* P1 P2		***Double, Multiple -Width/ - Height Mode*** P1 controls line spacing (e.g. 0/x) and character height (e.g. x/0) P2 controls character width P1 = 0/x line spacing unchanged P1 = 1/x single line space P1 = 2/x double line space P1 = 3/x triple line space P1 = 4/x quadruple line space P1 = x/0 charcter height unchanged P1 = x/1 single charcter height P1 = x/2 double character height P1 = x/3 triple character height P1 = x/4 quadruple character height P2 = 0/0 character width unchanged P2 = 0/1 single character width P2 = 0/2 double character width P2 = 0/3 triple character width P2 = 0/4 quadruple character width ***Example:*** Coding to select “double line space”, “double character height”, and “double character width” in Hex: 1B 5B 40 04 00 00 00 22 02
ESC D P1 P2 ... P32 *NUL*		***Set Horizontal Tabs*** (P1...P32 = 0/1...F/F)
ESC E		***Select Emphasized Printing (bold)***
ESC F		***Cancel Emphasized Printing (bold)***
ESC G		***Select Double Strike Printing (bold)***
ESC H		***Cancel Double Strike Printing***

Escape Sequence	Mnemonic	Function
ESC I P1		***Select Character Mode*** P1 = 0/0 : Draft, 10 cpi P1 = 0/1 : Draft, Proportional P1 = 0/2 : Courier, 10 cpi P1 = 0/3 : Courier, Proportional P1 = 0/8 : Draft, 12 cpi P1 = 0/A : Courier, 12 cpi P1 = 1/0 : Draft, 17 cpi P1 = 1/2 : Courier, 17 cpi
ESC P P1		***Cancel / Select Proportional Printing*** P1 = 0/0 or 0 : cancel Proportional P1 = 0/1 or 1 : select Proportional
ESC R		***Restore Horizontal Tabs to Default***
ESC S P1		***Select Superscript/Subscript*** P1 = 0/0 or 0 : select Superscript P1 = 0/1 or 1 : select Subscript
ESC T		***Cancel Superscript/Subscript***
ESC U P1		***Cancel / Select Unidirectional Printing*** P1 = 0/0 or 0 : cancel Unidirectional P1 = 0/1 or 1 : select Unidirectional
ESC W P1		***Cancel / Select Double Width*** P1 = 0/0 or 0 : cancel Double Width P1 = 0/1 or 1 : select Double Width
ESC X P1 P2		***Set Left and Right Margins*** P1 : Left Margin P2 : Right Margin (Pn = 0/0...F/F)
ESC d P1 P2		**Set Relative Horizontal Dot Position** (P1 + P2 x 256)/120" (Pn = 0/0...F/F)
ESC <		***Home Position of Printhead (left margin)***
ESC ;		***Set Left Margin at Current Position***
ESC [P1 SP r (*Native Command)*	**SPQ**	***Select Print Quality LQ / NLQ*** P1 = 0 :LQ P1 = 1 :NLQ; this is only valid if the NLQ type style is available. P1 = 2 :Draft P1 = 3 :HSD (High Speed Draft) ***Note:*** The LQ / NLQ selection becomes active if a LQ-/NLQ-font is selected. Draft / HSD becomes active if type style DATA is selected.

Escape Sequence	Mnemonic	Function
ESC [P1 ; P2 x (*Native Command)*	**CPL**	***Select Font and Character Pitch*** (parameter P1 or P2 may be skipped, see following alternative command sequences)
ESC [P1 x (*Native Command)*		***P1 Selects Font*** P1 = 0 or missing : Font is unchanged P1 = 1 : Data P1 = 2 : Roman P1 = 3 : Sans Serif P1 = 4 : Courier P1 = 5 : Prestige P1 = 6 : Script P1 = 7 : OCR-B P1 = 8 : OCR-A P1 = 9 : Orator-C P1 = 10 : Script P1 = 11 : Data Large ***Note:*** Data Block is not available
ESC [;P2 x (*Native Command)*		***P2 Selects Character Pitch*** P2 = 0 or missing : Pitch is unchanged P2 = 1 : 10 cpi P2 = 2 : 12 cpi P2 = 3 : 15 cpi P2 = 4 : (proportional) P2 = 5 : proportional P2 = 6 : 14.4 cpi P2 = 7 : 18 cpi P2 = 8 : 17.1 cpi P2 = 9 : 20 cpi

Table 5: Character Set Selection

Escape Sequence	Mnemonic	Function
ESC 6		***Select Character Set 2***
ESC 7		***Select Character Set 1***
ESC \ P1 P2		***Print from All Character Set*** Number of codes = (P1 + P2 * 256) (Pn = 0/0...F/F)
ESC ^ P1		***Print Single Character from All Character Set*** P1 = Number of Char. Set or Code Page (Pn = 0/0...F/F)
ESC [T n1 n2 NUL NUL P1 P2		***Code Page Switching*** n1 = 4, n2 = 0 P1, P2 for Code-Page number, most significant byte first. P1 P2 1 181 : CP 437 U.S.A. 3 82 : CP 850 Multilingual 3 90 : CP 858 Multilingual + Euro 3 92 : CP 860 Portugal 3 95 : CP 863 Canada - French 3 97 : CP 865 Norw

Table 6: Graphics Modes

Escape Sequence	Mnemonic	Function
ESC 3 P1		***Set Line Space*** P1/216 lpi (non AGM), P1/180 lpi (AGM) (P1 = 0/1...F/F)
ESC J P1		***Perform Line Feed*** P1/216 lpi (non AGM), P1/180 lpi (AGM) (P1 = 0/0...F/F)
ESC K P1 P2 v1 . . . vn		***Standard Density Graphics Mode *)*** (P1 + P2 * 256) = number of data (Pn = 0/0...F/F)
ESC L P1 P2 v1 . . . vn		***Double Density Graphics Mode *)*** (P1 + P2 * 256) = number of data (Pn = 0/0...F/F)

Escape Sequence	Mnemonic	Function
ESC Y P1 P2 v1 . . . vn		***Double Speed & Density Graphics Mode *)*** (P1 + P2 * 256) = number of data (Pn = 0/0...F/F)
ESC Z P1 P2 v1 . . . vn		***Quadruple Density Graphics Mode *)*** (P1 + P2 * 256) = number of data (Pn = 0/0...F/F) *) consecutive horizontal dots cannot be printed.
ESC [g P1 P2 P3 v1 . . . vn		***Select Various Graphics Modes (IBM)*** P1 + P2 * 256 = number of data bytes + 1 (P1,P2 = 0/0...F/F) v1 .. vn = binary data in hex code

Parameter Table Graphic Density P3:

P3	Graphic type	dots per column	max. of columns	hor. density (dpi)	ert. density no v AGM	vert. density AGM	
0/0	Standard Density (K)	8	816	60	72	60	
0/1	Double Density (L)	8	1632	120	72	60	
0/2	2xDensity / 2xSpeed (Y)	8	1632	120	72	60	*)
0/3	Quadruple Density (Z)	8	3264	240	72	60	*)
0/8	Standard Density	24	816	60	180	180	
0/9	Double Density	24	1632	120	180	180	
0/B	Triple Density	24	2448	180	180	180	
0/C	Hex Density	24	4896	360	180	180	*)

*) *consecutive horizontal dots cannot be printed.*

Example: box 8x8 dots with center point 2x2 dots, standard density, 8 dots column
Hex: 1B 5B 67 09 00 00 FF 81 81 99 99 81 81 FF

Table 7: Further Control Sequences, supported by IBM Emulation Mode

(Native Commands)

Escape Sequence	Alternative	Function
ESC [	$$	***Control String Introducer (CSI)*** for" ESC [HEX 1B 5B
ESC	$$/	***Control String Introducer (ESC)*** for "ESC" HEX 1B
ESC * P1 P2 P3 v1 . . . vn		***Select Various Graphics Modes*** P2 + P3 * 256 = number of columns (P2,P3 = 0/0...F/F) v1 .. vn = binary data in hex code

Parameter Table Graphic Density:

P1	Graphic type	dots per column	max. of columns	hor. density (dpi)	ert. density no v AGM	vert. density AGM	
0/0	Standard Density (K)	8	816	60	72	60	
0/1	Double Density (L)	8	1632	120	72	60	
0/2	2xDensity / 2xSpeed (Y)	8	1632	120	72	60	*)
0/3	Quadruple Density (Z)	8	3264	240	72	60	*)
0/4	CRT I	8	1088	80	72	60	
0/5	Plotter	8	979	72	72		
0/6	CRT II	8	1224	90	72	60	
0/B	Double Density Plotter	8	1958	144	72		*)
2/0	Standard Density	24	816	60	180	180	
2/1	Double Density	24	1632	120	180	180	
2/6	CRT III	24	1224	90	180	180	
2/7	Triple Density	24	2448	180	180	180	
2/8	Hex Density	24	4896	360	180	180	*)

*) *consecutive horizontal dots cannot be printed.*

Example: box 8x8 dots with center point 2x2 dots, standard density, 8 dots / column
Hex: 1B 2A 00 08 00 FF 81 81 99 99 81 81 FF

Escape Sequence	Alternative	Function
ESC [ESC [P1 ; P2 w	**SNVCT**	***Set National Version and Code Table*** P1 = 1 - 15 national version depending on selected character set (see Appendix C Char. Set Tables) P2 = 3 digit code of the code table (see command SCT) ***P1 for national version IBM SET 2:*** P1 = 1 : U.S.A P1 = 2 : France P1 = 3 : Germany P1 = 4 : U.K. P1 = 5 : Denmark P1 = 6 : Sweden P1 = 7 : Italy P1 = 8 : Spain P1 = 9 : YESpan P1 = 1 0 : Norway P1 = 1 1 : Denmark 2 P1 = 1 2 : Spain 2 P1 = 1 3 : Latin AM P1 = 1 4 : Turkey
		P1 for IBM CODE PAGE: P1 = 1 : CP 437 P1 = 2 : CP 850 P1 = 3 : CP 860 P1 = 4 : CP 863 P1 = 5 : CP 865 P1 = 6 : CP 858
		P1 for CODE PAGE EE: P1 = 1 : CP 437 GK P1 = 2 : CP 851 GK P1 = 3 : CP 928 GK P1 = 4 : CP 855 CYRI P1 = 5 : CP 866 P1 = 6 : CP 869 P1 = 7 : CP 852

Escape Sequence	Alternative	Function
ESC [ESC [P1 ; P2 w	**SNVCT**	***P1 for CODE PAGE EE: (continou)*** P1 = 8 : KAMENICKY P1 = 9 : ISO LATIN 2 P1 = 1 0 : MAZOVIA P1 = 1 1 : CP 437 HUN P1 = 1 2 : CP 852 SEE P1 = 1 3 : CP 866 LAT P1 = 1 4 : WIN LAT2
		P1 for CODE PAGE EE2: P1 = 1 : CP 771 P1 = 2 : CP 773 P1 = 3 : CP 774 P1 = 4 : CP 775 P1 = 5 : CP BALTIC RIM
ESC [; P2 w	**SCT**	***Set Code Table*** P2 = 3 digit code of the code table P2 = 0 3 1 : ISO 8859/1; LATIN 1 P2 = 0 3 1 : ISO 8859/15; LATIN 9 P2 = 0 6 1 : IBM Set 1 P2 = 0 6 2 : IBM Set 2 P2 = 0 6 3 : IBM Code Page [1]) P2 = 0 7 1 : EPSON Ext. G. C. T P2 = 1 0 0 : CODE PAGES EE P2 = 1 0 1 : CODE PAGES EE2 [1]) depending on selected character set (P1) the IBM CODE PAGE 437, 850, 860, 863, 865, or 858 (P1 = 6; P2 = 63) will be activated!
ESC [P1 ; P2 SP r	**SM #**	***Select Macro and Change Emulation*** P1 = 1 : Macro 1 P1 = 2 : Macro 2 P1 = 3 : Macro 3 P1 = 4 : Macro 4 P2 = 0: no change of emulation P2 = 2: IBM ProPrinter Emulation P2 = 3: IBM ProPrinter AGM Emulation P2 = 4: EPSON Emulation
ESC M	**RLF**	***Reverse Line Feed***
ESC [< s	**EJF**	***Eject Form***

Escape Sequence	Alternative	Function
ESC [P1 ; P2 SP B	**GSM**	***Graphic Size Modification*** P1 = **100** / P2 = **100** :normal height/width P1 = **200** / P2 = **200** :double height/width P1 = **300** / P2 = **300** :triple height/width P1 = **400** / P2 = **400** :quadruple height/ width P1 and P2 max. = 800 in steps of ***100*** Graphic Size Modification for DATA LARGE P1 = **100** / P2 = **100** :normal height / width P1 and P2 max. 9900 in steps of ***100***
ESC [P1 `	**HPR**	***Set Horizontal Position Relative*** P1 = print column (P1 = 0...9999)
ESC [P1 b	**RPT**	***Repeat Character*** P1 = number of repetitions (P1 = 1...999)
ESC [P1 `	**HPA**	***Set Horizontal Position Absolute*** P1 = print column (P1 = 0...9999)
ESC [P1 a	**HPR**	***Set Horizontal Position Relative*** P1 = print column (P1 = 0...9999)
ESC [P1 d	**VPA**	***Set Vertical Position Absolute*** P1 = 0 or 1: Top of Form / Top Margin P1 = 2... 9999: Vertical Line
ESC [P1 e	**VPR**	***Set Vertical Position Relative*** P1 = 0 or 1: moves the position one line P1 = 2... 9999: Vertical Line
ESC [P1 g	**TBC**	***Tabulation Clear*** P1 = 0: at active print pos. all tabs and margin marker, P1 = 3: all horizontal-, P1 = 4: all vertical tabs and margin marker
ESC [P1 w	**SNV**	***Set National Version*** P1 = 1 - 15 national version depending on selected character set (see SNVCT and Appendix C Character Set Tables)
ESC [P1 {	**LSL**	***Line Space Load*** P1 = 1, 2, 3, 4, 6, 8, 12, 16, 24, 48, 60, 72, 90, 144, 180, 360

Escape Sequence	Alternative	Function
ESC [P1 m	**SGR**	***Set Graphic Rendition*** P1 = 0 : default - no rendition or rendition reset P1 = 1 : bold P1 = 3 : italics P1 = 4 : underline P1 = 9 : crossed out or strike through printing P1 = 20 : enlarged double width printing P1 = 21 : double underline P1 = 22 : bold reset P1 = 23 : italics reset P1 = 24 : underline reset P1 = 29 : crossed out reset P1 = 30 to 36 : ignored P1 = 53 : over lined P1 = 55 : over lined reset
ESC [; P2 ; P3 ; P4 ; P5 ; P6 ; P7 *SP* z **BARCODE Programming** see Appendix F	**BH**	***Barcode Header*** P2 : Barcode typ P3 : Height of barcode P4 : Width of the thin bars P5 : Width of the thin gaps P6 : Ratio width to thin (bars / gaps) P7 : Uni-or bi-directional printing 0 :or not programmed: means no changes 1 : uni-directional printing in LQ 2 : bi-directional printing in LQ 3 : uni-directional printing in NLQ 4 : bi-directional printing in NLQ
ESC [? 0 h	**SMBC**	***Set Mode Barcode*** (Start Barcode)
ESC [? 0 l	**RSBC**	***Reset Mode Barcode*** (Stop Barcode)
$$	**$$**	***Control String Introducer*** (CSI) for ESC [
$$ /	**$$ /**	***Control String Introducer*** (ESC) for ESC

Hex Code	Format	Page
00	Null	D-2
08	Backspace	D-2
09	Horizontal Tab	D-2
0A	Line Feed	D-2
0B	Vertical Tab	D-2
0C	Form Feed	D-2
0D	Carriage Return	D-2
0E	Select Double Width (one line)	D-2
0F	Select Condensed Mode (17,1 cpi)	D-2
11	Select Printer	D-2
12	Select Pica (10 cpi)	D-2
13	Buffer Data Flow Control	D-2
14	Cancel Double Width	D-2
18	Cancel Buffer	D-2
1B	Escape	D-2
20	Space	D-2
7F	Delete	D-2
1B 30	Set Line Space to 1/ 8“	D-3
1B 31	Set Line Space to 7/ 72“	D-3
1B 32	Start Variable Line Space	D-3
1B 34	Set Top Of Form	D-3
1B 36	Select Character Set 2	D-8
1B 37	Select CHaracter Set 1	D-8
1B 3A	Select Elite (12 cpi)	D-8
1B 3B	Set Left Margin at Current	D-6
1B 3C	Home Position of Printhead	D-6
1B 45	Select Emphasized Printing (bold)	D-5
1B 46	Cancel Emphasized Printing	D-5
1B 47	Select Double Strike (bold)	D-5
1B 48	Cancel Double Strike	D-5
1B 4D	Reverse Line Feed	D-12
1B 4F	Cancel Automatic Perforation Skip	D-3
1B 52	Restore Horizontal Tabs to Default	D-6
1B 54	Cancel Superscript/Subscript	D-7
1B 5D	Reverse Line Feed	D-3
24 24	Control String Introducer for ESC [	D-14
24 24 2F	Control String Introducer for ESC	D-14

Hex Code	Format	Page
1B 2D 00 / 1B 2D 01	Cancel / Select / Underline	D-5
1B 33 P1	Set Line Space to P1/216" (P1/180")	D-8
1B 35 01 / 1B 35 00	Carriage Return Function	D-3
1B 41 P1	Set Line Space to P1/72" (P1/60")	D-3
1B 43 P1	Set Form Length in Lines	D-3
1B 49 P1	Select Character Mode	D-6
1B 4A P1	Perform P1/216" (P1/180") Line feed	D-8
1B 4E P1	Set Automatic Perforation Skip	D-3
1B 50 00 / 1B 50 01	Cancel / Select Proportional Printing	D-6
1B 51 23 or 1B 51 24	Deselect Printer	D-2
1B 53 00 / 1B 53 01	Select Superscript / Subscipt	D-6
1B 55 00 / 1B 55 01	Cancel / Select Unidirectional Printing	D-5
1B 57 00 / 1B 57 01	Cancel / Select Double Width	D-6
1B 5E P1	Single Character from All Char. Set	D-8
1B 5F 00 / 1B 5F 01	Cancel / Select Overline Printing	D-5
1B 2A P1 P2 P3 data	Select Various Graphics Modes	D-10
1B 42 P1....P64 00	Set Vertical Tabs	D-3
1B 43 00 P1	Set Form Lenght in Inches	D-3
1B 44 P1...Pn 00	Set Horizontal Tabs	D-5
1B 4B P1 P2 data	Standard Density Graphics Mode	D-9
1B 4C P1 P2 data	Double Density Graphics Mode	D-8
1B 58 P1 P2	Set Left and Right Margins	D-6
1B 59 P1 P2 data	Double Speed & Double Density Graphics Mode	D-9
1B 5A P1 P2 data	Quadruple density Graphics Mode	D-9
1B 5B 3B P2 73	AGC / PCC Procedure	D-4
1B 5B 3B P2 77	Set Code Table	D-12
1B 5B 3B P2 3B P3 3B P4 3B P5 3B P6 3B P7 20 7A	Barcode Header	D-14
1B 5B 3C 73	Eject Form	D-12
1B 5B 3E 73	Insert Form	D-3
1B 5B 3E P1 3B P2 3B P3 73	Select Paper Source and Insert Form	D-4
1B 5B 3F 30 68	Set Mode Barcode	D-14
1B 5B 3F 30 6C	Reset Mode Barcode	D-14
1B 5B 40 04 00 00 00 P1 P2	Double, Multible -Width/-Height Mode	D-5
1B 5B 54 n1 n2 NUL NUL P1 P2	Code Page Switching	D-8
1B 5B 5C 04 00 00 00 P1 00	Set Line Space Unit	D-3
1B 5B 67 P1 P2 P3 data	Select Various Graphics Modes (IBM)	D-10
1B 5B P1 20 58	Select Print Quality LQ / NLQ	D-6

Hex Code	Format	Page
1B 5B P1 3B P2 20 72	Select Macro and Change Emulation	D-12
1B 5B P1 3B P2 20 42	Graphic Size Modification	D-13
1B 5B P1 3B P2 77	Set National Version and Code Table	D-12
1B 5B P1 3B P2 78	Select Font and Character Pitch	D-7
1B 5B P1 60	Set Horizontal Position Absolute	D-13
1B 5B P1 61	Set Horizontal Position Relative	D-13
1B 5B P1 62	Repeat Character	D-13
1B 5B P1 64	Set Vertical Position Absolute	D-13
1B 5B P1 65	Set Vertical Position Relative	D-13
1B 5B P1 67	Tabulation Clear	D-13
1B 5B P1 6D	Set Graphic Rendition	D-14
1B 5B P1 73	Select Paper Source	D-4
1B 5B P1 77	Set National Version	D-13
1B 5B P1 7B	Line Space Load	D-13
1B 5C P1 P2	Print from All Character Set	D-8
1B 64 P1 P2	Set Relative Horizontal Dot Position	D-6

Hex - Decimal Conversion Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	269	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Appendix E EPSON LQ ® Quick Reference

EPSON LQ 2550 and ESC/P Emulation

This appendix contains basic information on the EPSON LQ 2550, ESC/P2, and EPSON Barcodes Printer Emulation:

Characters used in control functions appear in monospaced type. Table 1 explains some of the conventions used.

A pair of numbers separated by a slash (/) character indicates Column/Row notation. This notation refers to the location of a character in a standard code table, such as ASCII. (example: 1/B = 1B is the hex-code for Escape)
Spaces appear between characters in sequence for clarity; they are not part of the format.

At the end of this chapter you will find a listing of the **EPSON LQ 2550, ESC/P2**, and EPSON Barcodes Emulation commands classified by Hex Code and a Hex- Decimal conversion table.

The following conventions are used in the command listings:

Table 1 Conventions

ESC	Escape (1/B), introduces an escape sequence
Pn	Numeric parameter, or number of units that specify a distance or quantity pertaining to the escape sequence, control function or control string. Accepted values are 0...9999, may be preceded by + or -. If the parameter is in normal notation like “200” the programming in hex- code is according to a ASCII table. (“200” = 32,30,30 in hex). If the parameter must be programmed in hex-code the notation is with a slash. (1/A = 1A in hex-code)
v1...vn	A series of parameters pertaining to the escape sequence, control function or control string.
SP	Is standing for Space (hex 20)

(Native Command)

additional PSi command usable for the original emulation. Controls PSi specific printer features that are not present in the original printer.

Table 2: Control Codes

Column/Row	Mnemonic	Function
0/0	**NUL**	***Null***
0/8	**BS**	***Backspace***
0/9	**HT**	***Horizontal Tab***
0/A	**LF**	***Line Feed***
0/B	**VT**	***Vertical Tab***
0/C	**FF**	***Form Feed***
0/D	**CR**	***Carriage Return***
0/E	**SO**	***Double Width Printing By Line***
0/F	**SI**	***Condensed Printing (17.1 cpi)***
1/1	**DC1**	***Select Printer***
1/2	**DC2**	***Select Pica (10 cpi)***
1/3	**DC3**	***Deselct Printer***
1/4	**DC4**	***Cancel Double Width Printing By Line***
1/8	**CAN**	***Cancel Buffer***
1/B	**ESC**	***Initiate Escape Sequence***
2/0	**SP**	***Space***
7/F	**DEL**	***Delete***

Table 3: Terminal Management

Escape Sequenz	Function
ESC @	***Initialize Printer***
ESC =	***Set Most Significant Bit to 0***
ESC >	***Set Most Significant Bit to 0***
ESC #	***Cancel Most Significant Bit Control***

Vertical Form Handling

The printer is always equipped with two continuous form tractors. The last sheet of a continuous form stack can be printed on up to the end of the form.

The capabillity of the printer to feed paper from different sources is optimally supplemented by the option that automatically adjust the distance between the print head and the print bar.

Table 4: Vertical Form Handling

Escape Sequenz	Function
ESC 0	***Set Line Space to 1/8"***
ESC 2	***Set Line Space to 1/6"***
ESC 3 P1	***Set Line Space to P1/180"*** (P1 =0/ 0...F/F)
ESC + P1	***Set Line Space to P1/360"*** (P1 = 0/0...F/F)
ESC A P1	***Set Line Space to P1/60"*** (P1 = 0/0...7/F)
ESC B NUL	***Clear Vertical Tabs***
ESC B P1 P2 . . P16 NUL	***Set Vertical Tabs*** (P1...P16 = 0/1...F/F)
ESC C P1	***Set Form Length in Lines*** (P1 = 0/1...7/F)
ESC C NUL P1	***Set Form Length in Inches*** (P1 = 0/1...1/6)
ESC J P1	***Perform P1/180" Line Feed*** (P1 = 0/0...F/F)
ESC N P	***Set Automatic Perforation Skip*** (P1 = 0/1...7/F) P1 is the number of lines from bottom of paper to skip.
ESC O	***Cancel Automatic Perforation Skip***
ESC b P1 P2 .. P16 NUL	***Set Vertical Tabs in Channel P1*** P1 = 0/0 .. 0/7 : channel 0 - 7 P2..P16 = line number (P2..P16 = 0/1..F/F)
ESC b P1 *NUL*	***Clear all Tabs in Channel*** P1 P1 = 0/0 .. 0/7 : channel 0 - 7
ESC j P1	***Perform $^{P1}/_{180}$ „Reverse Line Feed*** (P1 = 0/0...F/F)
ESC / P1	***Select Vertical Tab Channel*** P1 = 0/0 .. 0/7 : channel 0 .. 7
ESC *EM* P1	***Form Feed and ASF Control Form Feed***: EM = 1/9 *ASF Control:* P1 = 3/1: ASF Bin 1 or Bin 2 P1 = 3/2: ASF Bin 2 or Bin 3 P1 = 3/3: ASF Bin1 or Bin 2 or Bin 3 P1 = R: (5/2) eject sheet

Escape Sequenz	Mnemonic	Function
ESC [> P1 ; P2 ; P3 ; P4 s *(Native Command)*	**SPSIF**	***Select Paper Source and Insert Form*** (>), Select Paper Source,Print Gap, Paper Exit, Cut Mode.
ESC [> P1 s *(Native Command)*	**SPS**	***Select Paper Source:*** P1 = 0 Manual Feed [2]) P1 = 1 ASF, Bin 1 [1]) P1 = 2 ASF, Bin 2 [1]) P1 = 3 ASF, Bin 3 [1]) P1 = 6 upper Tractor P1 = 7 Tractor Feed (lower Tractor) P1 = 8 AFS, Bins 1 or 2 [1]) P1 = 9 ASF, Bins 2 or 3 [1]) P1 = 10 ASF, Bins 1 or 2 or 3 [1]) P1 = 15 upper and lower Tractor [1]) only for printer **PP 806**; [2]) not for **PP 809**
ESC [> ;P2 s *(Native Command)*	**AGC**	***Print Gap:*** P2 = 0 : Automatic Gap Control P2 = 1 Print Gap for 1-ply copy P2 = 2 Print Gap for 2-ply copies P2 = 3 Print Gap for 3-ply copies P2 = 4 Print Gap for 4-ply copies P2 = 5 Print Gap for 5-ply copies P2 = 6 Print Gap for 6-ply copies P2 = 7 Print Gap for 7-ply copies P2 = 8 Print Gap for 8-ply copies [4]) P2 = 9 Print Gap for 9-ply copies [4]) [4]) only for printer PP 803
ESC [> ;;P3 s *(Native Command)*	**PE**	***Paper Exit:*** P3 = 0 reserved (no change) P3 = 1 or 2 Paper Exit Front (manual) P3 = 3 : Batch output (rear), default
ESC [> ;;;P4 s *(Native Command)*	**CM**	***Cut Mode:*** P4 = 0 Cut Mode off P4 = 1 Cut Mode On P4 = 2 Cut on actual Line (cutting edge is approximate 4 mm above the base of the actual line) [3]) only active if CUT DEVICE is installed and activated.

Table 5: Horizontal Form Handling and Printing Modes

Escape Sequenz	Mnemonic	Function
ESC *SO*		***Select Double Width for One Line***
ESC *SI*		***Select Condensed*** 10 cpi -> 17 cpi 12 cpi -> 20 cpi 15 cpi -> 15 cpi (unchanged) proportional -> proportional cond.
ESC *SP* P1		***Select Intercharacter Space*** Unit 1/120" for DRAFT (P1 = 0/0...7/F) Unit 1/180" for NLQ/LQ (P1 = 0/0...7/F)
ESC ! P1		***Select Multiple Print*** Mode P1 selects: Bit 0 = 0 : 10 cpi (Pica) Bit 0 = 1 : 12 cpi (Elite) Bit 1 = 1 : proportional Bit 2 = 1 : Condensed Bit 3 = 1 : Emphasized Bit 4 = 1 : Double Strike Bit 5 = 1 : Double Width Bit 6 = 1 : Italics Bit 7 = 1 : Underline
ESC $ P1 P2		***Set Absolute Horizontal Position*** (P1 + P2 * 256) * $^1/_{60}$ " (P1 = 0/0...F/F) (P2 = 0/0...0/3)
ESC \ P1 P2		***Set Relative Horizontal Position*** **Draft**: (P1 + P2 * 256) * 1/120" (P1 = 0/0...F/F) (P2 = 0/0...0/6) **NLQ/LQ**: (P1 + P2 * 256) * 1/180" (P1 = 0/0...F/F) (P2 = 0/0...0/3)
ESC % P1		***Select Standard / User Defined Character Set*** P1 = 0/0 : Standard Character Set P1 = 0/1 : User Defined Character Set
ESC 4		***Set Italics***
ESC 5		***Cancel Italics***

Escape Sequenz	Mnemonic	Function
ESC (- P1 P2 P3 P4 P5		***Select Line Marking*** P1 = 0/3 (fixed value) P2 = 0/0 (fixed value) P3 = 0/1 (fixed alue) P4 = 0/1 : underline P4 = 0/2 : strike through P4 = 0/3 : overscore P5 = 0/0 : cancel score line selected by P4 P5 = 0/1 : single continuous line P5 = 0/2 : double continuous line P5 = 0/5 : single broken line P5 = 0/6 : double broken line
ESC <		***Select Unidirectional Mode (one line)***
ESC : NUL P1 NUL		***Copy ROM Character Set to RAM*** P1 = 0/0 : ROMAN P1 = 0/1 : SANS SERIF P1 = 0/2 : COURIER P1 = 0/3 : PRESTIGE P1 = 0/4 : SCRIPT P1 = 0/5 : OCR-B P1 = 0/6 : OCR-A P1 = 0/7 : ORATOR-C P1 = 0/8 : ORATOR
ESC & *NUL* P1 P2 P3 P4 P5 v1 .. vn		***Define User Defined Characters*** P1 = first code table position (P1 = 0/0...P2) P2 = last code table position (P2 = P1...7/F) P3 = front space (P3 = 0/0...5/0) P4 = body length Draft: (P4 = 0/0...0/F) LQ: (P4 = 0/0...2/5) P5 = rear space (P5 = 0/0...5/0) v1 .. vn = binary data in hex (vn = 0/0...F/F)

Notes: This Command defines one or more characters in a RAM character table.
All User Defined Characters are erased when the printer is switched off.
Set the Interface Buffer to 1k or 8K (max 50 defined char in LQ, 128 in draft), or use a RAM card for up to 128 User Defined Characters in LQ. Set maximum every second dot to “1” in a horizontal line! User Defined Characters can be defined in four different print modes:resolution (vertical x horizontal)
Normal Size with Draft: 24 x 15
Normal Size with LQ / proport.: 24 x 37
Sub-/ Superscript with Draft: 16 x 15 Sub-/ Superscript
with LQ/proport. 16 x 37
The characters can only be activated in the same mode as defined. The character layout is coded in three bytes (24 bit vertical) or two bytes (16 bit vertical) per column, top to bottom.
To print the character change to the User Defined Character Set with ESC %
Example: vertical box, normal size with draft at code table position “41” (P3=8, P4=5, P5=8)
hex: 1B 26 00 41 41 08 05 08 FF FF FF 00 00 00 80 00 01 00 00 00 FF FF FF

Escape Sequenz	Mnemonic	Function
ESC - P1		***Underline Printing*** P1 = 0/1 : set Underline Printing P1 = 0/0 : cancel Underline Printing
ESC D *NUL*		***Clear Horizontal Tabs***
ESC D P1 P2 . . . P32 NUL		***Set Horizontal Tabs*** P1 ... P32 = tab position (Pn = 0/1..F/F)
ESC E		***Select Emphasized Printing (bold)***
ESC F		***Cancel Emphasized Printing***
ESC G		***Select Double Strike Printing (bold)***
ESC H		***Cancel Double Strike Printing***
ESC M		***Select Elite (12 cpi)***
ESC P		***Select Pica (10 cpi)***
ESC Q P1		***Set Right Margin*** (P1 = 0/4 ... F/F)
ESC S P1		***Select Superscript/Subscript*** P1 = 0/0 or 3/0 : select Superscript P1 = 0/1 or 3/1 : select Subscript
ESC T		***Cancel Superscript/Subscript***
ESC U P1		***Cancel/Select Unidirectional Printing*** P1 = 0/0 or 3/0 : cancel Unidirectional P1 = 0/1 or 3/1 : select Unidirectional
ESC W P1		***Cancel/Select Double Width*** P1 = 0/0 or 3/0 : cancel Double Width P1 = 0/1 or 3/1 : select Double Width
ESC a P1		***Select Justification*** P1 = 0/0 : select left justification P1 = 0/1 : center between margins P1 = 0/2 : select right justification P1 = 0/3 : select full justification
ESC g		***Select Pitch 15 cpi***
ESC | P1		***Set Left Margin*** (P1 = 0/0...F/C)
ESC p P1		***Cancel/Select Proportional*** P1 = 0/0 or 3/0 : cancel proportional P1 = 0/1 or 3/1 : select proportional

Escape Sequenz	Mnemonic	Function
ESC k P1		***Select Font*** P1 = 0/0 : ROMAN P1 = 0/1 : SANS SERIF P1 = 0/2 : COURIER P1 = 0/3 : PRESTIGE P1 = 0/4 : SCRIPT P1 = 0/5 : OCR-B P1 = 0/6 : OCR-A P1 = 0/7 : ORATOR-C P1 = 0/8 : ORATOR P1 = 1/1 : DATA LARGE
ESC q P1		***Select Character Style*** P1 = 0/0 : normal style P1 = 0/1 : outline P1 = 0/2 : shadow P1 = 0/3 : outline + shadow
ESC w P1		***Cancel/Select Double Height*** P1 = 0/0 or 3/0 : cancel P1 = 0/1 or 3/1 : select
ESC x P1		***Select Character Quality*** P1 = 0/0 or 3/0 : select Draft P1 = 0/1 or 3/1 : select LQ or NLQ dep. on set-up
ESC [P1 ; P2 SP B (*Native Command)*	**GSM**	***Graphic Size Modification*** P1 = 100 / P2 = 100 : normal height / width P1 = 200 / P2 = 200 : double height / width P1 = 300 / P2 = 300 : triple height / width P1 = 400 / P2 = 400 : quadruple height / width P1 and P2 max. = 800 in steps of 100 Graphic Size Modification for FONT DATA LARGE P1 = 100 / P2 = 100 : normal height / width P1 and P2 max. 9900 in steps of 100
ESC [P1 SP r (*Native Command)*	**SPQ**	***Select Print Quality LQ / NLQ*** P1 = 0 :LQ P1 = 1 :NLQ; this is only valid if the NLQ type style is available. P1 = 2 :Draft P1 = 3 :HSD (High Speed Draft) ***Note:*** The LQ / NLQ selection becomes active if a LQ-/NLQ-font is selected. Draft / HSD becomes active if type style DATA is selected.

Escape Sequenz	Mnemonic	Function
ESC [P1 ; P2 x (*Native Command)*	**CPL**	***Select Font and Character Pitch*** (parameter P1 or P2 may be skipped, see following alternative command sequences)
ESC [P1 x (*Native Command)*		***P1 Selects Font*** P1 = 0 or missing : Font is unchanged P1 = 1 : Data P1 = 2 : Roman P1 = 3 : Sans Serif P1 = 4 : Courier P1 = 5 : Prestige P1 = 6 : Script P1 = 7 : OCR-B P1 = 8 : OCR-A P1 = 9 : Orator-C P1 = 10 : Script P1 = 11 : Data Large ***Note:*** Data Block is not available
ESC [;P2 x (*Native Command)*		***P2 Selects Character Pitch*** P2 = 0 or missing : Pitch is unchanged P2 = 1 : 10 cpi P2 = 2 : 12 cpi P2 = 3 : 15 cpi P2 = 4 : (proportional) P2 = 5 : proportional P2 = 6 : 14.4 cpi P2 = 7 : 18 cpi P2 = 8 : 17.1 cpi P2 = 9 : 20 cpi

Table 6: Graphic Modes

Escape Sequenz	Mnemonic	Function
ESC ? K P1		***Reassign Graphics Mode K*** [1)] Standard Density, 8 per column
ESC ? L P1		***Reassign Graphics Mode L*** [1)] Double Density, 8 dot per column
ESC ? Y P1		***Reassign Graphics Mode Y*** [1)] Double Density / Speed, 8 dot per col.
ESC ? Z P1		***Reassign Graphics Mode Z 1)*** Quadruple Density, 8 dot per column

Escape Sequenz	Mnemonic	Function
ESC K P2 P3 v1 . . . vn		***Standard Density Graphics Mode*** [1)]
ESC L P2 P3 v1 . . . vn		***Double Density Graphics Mode*** [1)]
ESC Y P2 P3 v1 . . . vn		***Double Density / Double Speed Graphics Mode*** [1)]
ESC Z P2 P3 v1 . . . vn		***Quadruple Density Graphics Mode*** [1)]
[1)]: for coding of P1, P2, P3 see **ESC *** next table		
ESC * P1 P2 P3 v1 . . . vn		***Select Various Graphics Modes*** P2 + P3 * 256 = number of columns v1 .. vn (0/0...F/F) binary data in hex code (0/0...F/F

Parameter Table Graphic Density:

P1	Graphic type	dots /	max. number	hor. density	
		column	of columns	(dpi)	
0/0	Standard Density (K)	8	816	60	
0/1	Double Density (L)	8	1632	120	
0/2	2xDensity / 2xSpeed (Y)	8	1632	120	*)
0/3	Quadruple Density (Z)	8	3264	240	*)
0/4	CRT I	8	1088	80	
0/6	CRT II	8	1224	90	
2/0	Standard Density	24	816	60	
2/1	Double Density	24	1632	120	
2/6	CRT III	24	1224	90	
2/7	Triple Density	24	2448	180	
2/8	Hex Density	24	4896	360	*)

*) *consecutive horizontal dots cannot be printed.*

Table 7: Character Set Selection

Escape Sequenz	Mnemonic	Function
ESC 6		***Enlarge Print Code Area (128-159 dec.)***
ESC 7		***Enable Upper Control Code (128-159 dec.)***
ESC R P1		***Select National Version*** P1 = 0/0 : U.S.A. P1 = 0/1 : FRANCE P1 = 0/2 : GERMANY P1 = 0/3 : U.K. P1 = 0/4 : DENMARK P1 = 0/5 : SWEDEN P1 = 0/6 : ITALY P1 = 0/7 : SPAIN P1 = 0/8 : YESPAN P1 = 0/9 : NORWAY P1 = 0/A : DENMARK 2 P1 = 0/B : SPAIN 2 P1 = 0/C : LATIN AM. P1 = 0/D : TURKEY P1 = 4/0 : LEGAL
ESC t P1		***Select Character Table*** P1 = 0/0 : Italics Character Table P1 = 0/1 : Extended Graphics Character Table P1 = 0/2 : User Defined Character Table

Table 8: ESC / P2 Commands

Escape Sequenz	Function
ESC (c P1 P2 P3 P4 P5	***Set page format*** Sets top and bottom margins in the defined units. P1 = 04 00 tm = P2 + P3 x 256 tm: top margin in units bm = P4 + P5 x 256 bm: bottom margin in units
ESC (C P1 P2 P3	***Set page length in defined unit*** Define page length in units P1 = 02 00 pl = P2 + P3 x 256
ESC (V P1 P2 P3	***Set absolute vertical print position*** Define absolute vertical print position in units P1 = 02 00 avpp = P2 + P3 x 256 avpp: define print position from top margin in defined units

Escape Sequenz	Function
ESC (v P1 P2 P3	***Set relative vertical print position*** Define relative vertical print position in units P1 = 02 00 rvpp = P2 + P3 x 256 rvpp: moves the print position in defined units.
ESC X P1 P2 P3	***Select font by pitch and point*** P1 = 0 : No change in pitch P1 = 1 : Selects proportional spacing P1 = 18, 24, 30, 36, 42, 48, 60 or 72 Selects fixed pitch equal to 360/m cpi pz = P2 + P3 x 256 pz: Point size in 0,5 points; 1 point equals 1/72 inch pz = 0: No change in point size pz = 16, 20, 21, 24, 28, 32, 36, 40, 42, 44, 48, 52, 56, 60, 64
ESC (U P1 P2	***Set unit*** P1 = 01 00 P2 = 10, 20, 30, 40, 50, 60 /3600” P2 = 10; Standard
ESC c P1 P2	***Set horizontal motion index (HMI)*** Define HMI-Index Change pitch value in n/360”-steps HMI = P1 + P2 x 256 HMI max. 3 inch
ESC (t n1 n2 Pn P1 P2	***Assign character table*** n1 = 3, n2 = 0 Pn = Parameter of ESC t : 0, 1, 2, 3, “0”, “1”, “2” or “3” P1 P2 = character table 0 0 : italic 1 0 : PC 437 (USA) 3 0 : PC 850 (Multilingual) 7 0 : PC 860 (Portugal) 8 0 : PC 863 (French-Canada) 8 0 : PC 865 (Norway) 29 15 : ISO 8859-15; LATIN 9 29 16 : ISO 8859-1, LATIN 1 44 0 : PC 858 (Multilingual + Euro) The character table assigned by Pn is one of the four tables which will be selected by the ESC t command.
ESC (^ P1 P2	***Print data as characters*** Prints n data bytes as characters, not control codes pd = P1 + P2 x 256

Escape Sequenz	Function
ESC t P1	***Select character table*** Selects the character table to be used for printing from among the four character tables which are assigned by ESC (t command. Pn = 0/0 or 3/0 : Character Table 0 Pn = 0/1 or 3/1 : Character Table 1 Pn = 0/2 or 3/2 : Character Table 2 Re-maps downloaded Characters from the positions 0 to 127 to the positions 128 to 255. Pn = 0/3 or 3/3 : Character Table 3 **Default Setting** Pn = 0/0 or 3/0 : Italics Character Table Pn = 0/1 or 3/1 : CP 437 Pn = 0/2 or 3/2 : User Defined Character Table Pn = 0/3 or 3/3 : CP 437
ESC (G P1 P2	***Select graphics mode*** P1 = 01 00 P2 = 1 or 49 Graphics mode may be reset by ESC @.
ESC . P1 P2 P 3 P4 P5 P6	***Print raster graphics*** P1 = 0 : graphics mode non compressed P1 = 1 : graphics mode compressed P2 = 10, 20 : vertical resolution in 3600/v DPI P3 = 10, 20 : horizontal resolution in 3600/h DPI P4 : vertical dot count (rows of dot graphics) 1 < P4 < 24 hzd : horizont dot count (columns of dot graphics) hzd = P5 + P6 x 256 Combination P2 = 10, P3 = 20 is not possible.

Table 9: EPSON Barcodes Commands

Escape Sequenz	Function
ESC (B P1 P2 k m s v1 v2 c *(BarCodeData)*	***Specify and Print barcode*** P1 P2 number of data bytes to follow: 6 bytes + number of BarCodeData = P1 + P2 x 256 k specifies the barcode type: k = 0/2 Interleaved 2 of 5 k = 0/5 Code 39 k = 06 Code 128 m specifies the module width (unit 1/180 inch) m = 0/2 2 dots (default) m = 0/3 3 dots m = 0/4 4 dots m = 0/5 5 dots s specifies the space adjustment value (unit 1/360 inch) -3 <= s <= 3 (F/D <= s <= 0/3) v1 and v2 specifies the bar length (v1+v2x256) (unit 1/180 inch) range : 45/180 inch <= bar legth <= 8.25 inch c specifies the control flag .bit 0 : Check digit 0: host generates check digit 1: printer generates check digit bit 1 : human readable character 0: print hr character ; 1: no print of character bit 2 to bit 7 : reserved Actual number of barcode data Interleaved 2 of 5 : 2 .. 255 Code 39 : 1 .. 255 Code 128 : 2 .. 255 Valid range of BarCodeData Interleaved 2 of 5 : 0 9 (30H 39H) Code 39 : 0 9 (30H 39H), (41H - 5AH) (20H, 24H, 25H, 2BH, 2DH, 2EH, 2FH) Code 128 : uses the code sets A, B, and C

	Code set A	Code set B	Code Set C
Data characters	x00 x5F	x20 - x7F	x30 x39
Code A	-	x1E	x3B
Code B	x64	-	x3A
Code C	x63	x1C	-
Shift	x62	x1B	-
FNC 1	x66	x1F	x3C
FNC 2	x61	x1A	-
FNC 3	x60	x19	-
FNC 4	x65	x1D	-

Table 10: Further Control Sequences, supported by EPSON LQ Emulation Mode

(Native Commands)

Escape Sequence	Alternative	Function
ESC [ESC [P1 ; P2 w	**SNVCT**	***Set National Version and Code Table*** P1 = 1 - 15 national version depending on selected character set (see Appendix C Char. Set Tables) P2 = 3 digit code of the code table (see command SCT) ***P1 for national version IBM SET 2:*** P1 = 1 : U.S.A P1 = 2 : France P1 = 3 : Germany P1 = 4 : U.K. P1 = 5 : Denmark P1 = 6 : Sweden P1 = 7 : Italy P1 = 8 : Spain P1 = 9 : YESpan P1 = 1 0 : Norway P1 = 1 1 : Denmark 2 P1 = 1 2 : Spain 2 P1 = 1 3 : Latin AM P1 = 1 4 : Turkey
		P1 for IBM CODE PAGE: P1 = 1 : CP 437 P1 = 2 : CP 850 P1 = 3 : CP 860 P1 = 4 : CP 863 P1 = 5 : CP 865 P1 = 6 : CP 858
		P1 for CODE PAGE EE: P1 = 1 : CP 437 GK P1 = 2 : CP 851 GK P1 = 3 : CP 928 GK P1 = 4 : CP 855 CYRI P1 = 5 : CP 866 P1 = 6 : CP 869 P1 = 7 : CP 852

Escape Sequence	Alternative	Function
ESC [ESC [P1 ; P2 w	**SNVCT**	***P1 for CODE PAGE EE: (continou)*** P1 = 8 : KAMENICKY P1 = 9 : ISO LATIN 2 P1 = 1 0 : MAZOVIA P1 = 1 1 : CP 437 HUN P1 = 1 2 : CP 852 SEE P1 = 1 3 : CP 866 LAT P1 = 1 4 : WIN LAT2
		P1 for CODE PAGE EE2: P1 = 1 : CP 771 P1 = 2 : CP 773 P1 = 3 : CP 774 P1 = 4 : CP 775 P1 = 5 : CP BALTIC RIM
ESC [; P2 w	**SCT**	***Set Code Table*** P2 = 3 digit code of the code table P2 = 0 3 1 : ISO 8859/1; LATIN 1 P2 = 0 3 1 : ISO 8859/15; LATIN 9 P2 = 0 6 1 : IBM Set 1 P2 = 0 6 2 : IBM Set 2 P2 = 0 6 3 : IBM Code Page [1]) P2 = 0 7 1 : EPSON Ext. G. C. T P2 = 1 0 0 : CODE PAGES EE P2 = 1 0 1 : CODE PAGES EE2 [1]) depending on selected character set (P1) the IBM CODE PAGE 437, 850, 860, 863, 865, or 858 (P1 = 6; P2 = 63) will be activated!
ESC [P1 ; P2 SP r	**SM #**	***Select Macro and Change Emulation*** P1 = 1 : Macro 1 P1 = 2 : Macro 2 P1 = 3 : Macro 3 P1 = 4 : Macro 4 P2 = 0: no change of emulation P2 = 2: IBM ProPrinter Emulation P2 = 3: IBM ProPrinter AGM Emulation P2 = 4: EPSON Emulation
$$	**$$**	***Control String Introducer*** (CSI) for ESC [
$$ /	**$$ /**	***Control String Introducer*** (ESC) for ESC

Escape Sequence	Alternative	Function
ESC [< s	**EJF**	***Eject Form***
ESC [P1 ; P2 SP B	**GSM**	***Graphic Size Modification*** P1 = **100** / P2 = **100** :normal height/width P1 = **200** / P2 = **200** :double height/width P1 = **300** / P2 = **300** :triple height/width P1 = **400** / P2 = **400** :quadruple height/ width P1 and P2 max. = 800 in steps of ***100*** Graphic Size Modification for DATA LARGE P1 = **100** / P2 = **100** :normal height / width P1 and P2 max. 9900 in steps of ***100***
ESC [P1 m	**SGR**	***Set Graphic Rendition*** P1 = 0 : default - no rendition or rendition reset P1 = 1 : bold P1 = 3 : italics P1 = 4 : underline P1 = 9 : crossed out or strike through printing P1 = 20 : enlarged double width printing P1 = 21 : double underline P1 = 22 : bold reset P1 = 23 : italics reset P1 = 24 : underline reset P1 = 29 : crossed out reset P1 = 30 to 36 : ignored P1 = 53 : over lined P1 = 55 : over lined reset

Escape Sequence	Alternative	Function
ESC [; P2 ; P3 ; P4 ; P5 ; P6 ; P7 *SP* z **BARCODE Programming** see Appendix F	**BH**	***Barcode Header*** P2 : Barcode typ P3 : Height of barcode P4 : Width of the thin bars P5 : Width of the thin gaps P6 : Ratio width to thin (bars / gaps) P7 : Uni-or bi-directional printing 0 :or not programmed: means no changes 1 : uni-directional printing in LQ 2 : bi-directional printing in LQ 3 : uni-directional printing in NLQ 4 : bi-directional printing in NLQ
ESC [? 0 h	**SMBC**	***Set Mode Barcode*** (Start Barcode)
ESC [? 0 l	**RSBC**	***Reset Mode Barcode*** (Stop Barcode)
CSI	**$$**	***Control String Introducer*** (CSI) for ESC [$$ can be used instead of 1B 5B if $$ Emulation is set to on
ESC	**$$/**	***Control String Introducer*** (ESC) for ESC $$/ can be used instead of 1B if $$ Emulation is set to on

Hex Code	Format	Page
00	Null	E-2
08	Backspace	E-2
09	Horizontal Tab	E-2
0A	Line Feed	E-2
0B	Vertical Tab	E-2
0C	Form Feed	E-2
0D	Cariage Return	E-2
11	Select Printer	E-2
12	Cancel Condensed Mode	E-2
13	Deselect Printer	E-2
14	Cancel Double Width	E-2
18	Cancel Buffer	E-2
1B	Escape	E-2
20	Space	E-2
7F	Delete	E-2
1B 0E or 0E	Select Double Width for One Line	E-5
1B 0F or 0F	Select Condensed Mode	E-5
1B 23	Cancel Most Significant Bit Control	E-2
1B 30	Set Line Space to $^{1}/_{8}$ "	E-3
1B 32	Set Line Space to $^{1}/_{6}$ "	E-3
1B 34	Set Italics	E-5
1B 35	Cancel Italics	E-5
1B 36	Enlarge Print Code Area	E-11
1B 37	Enable Upper Control Code Area	E-11
1B 3C	Select Unidirectional Mode (one line)	E-6
1B 3D	Set Most Significant Bit to 0	E-2
1B 3E	Set Most Significant Bit to 1	E-2
1B 40	Initialize Printer	E-2
1B 45	Select Emphasized (bold)	E-7

Hex Code	Format	Page
1B 46	Cancel Emphasized	E-7
1B 47	Select Double Strike (bold)	E-7
1B 48	Cancel Double Strike	E-7
1B 4D	Select Elite (12 cpi)	E-7
1B 4F	Cancel Automatic Perforation Skip	E-3
1B 50	Select Pica (10 cpi)	E-7
1B 54	Cancel Superscript/Subscript	E-7
1B 67	Select Pitch 15 cpi	E-7
24 24	Control String Introducer for ESC [	E-18
24 24 2F	Control String Introducer for ESC	E-18
1B 19 P_1	Form Feed	E-2
1B 20 P_1	Select Intercharacter Space	E-5
1B 21 P_1	Select Multible Print Mode	E-5
1B 25 00 / 1B 25 01	Select Standard- / User Defined Char. Set	E-5
1B 2B P_1	Set line Space to $^{P1}/_{360}$ "	E-3
1B 2E P_1	Select Vertical Tab Channel	E-3
1B 2D 01 / 1B 2D 00	Select / Cancel Underline	E-7
1B 33 P_1	Set Line Space to $^{P1}/_{180}$ "	E-3
1B 41 P_1	Set line Space to $^{P1}/_{60}$ "	E-3
1B 42 00	Clear Vertical Tabs	E-3
1B 43 P_1	Set Form Length in Lines	E-3
1B 44 00	Clear Horizontal Tabs	E-7
1B 4A P_1	Perform $^{P1}/_{180}$ Line Feed	E-3
1B 4E P_1	Set Automatic Perforation Skip	E-3
1B 51 P_1	Set Right Margin	E-7
1B 52 P_1	Set National Version	E-11
1B 53 00 / 1B 53 01	Select Superscript / Subscript	E-7
1B 55 00 / 1B 55 01	Cancel / Select Unidirectional Printing	E-7
1B 57 00 / 1B 57 01	Cancel / Select Double Width	E-7

Hex Code	Format	Page
1B 61 P_1	Select Justification	E-7
1B 6A P_1	Perform $^{P1}/_{180}$ Reverse Line Feed	E-3
1B 6B P_1	Select Font	E-8
1B 6C P_1	Set Left Margin	E-7
1B 70 00 / 1B 70 01	Cancel / Select Proportional	E-7
1B 71 P_1	Select Character Style	E-8
1B 74 P_1	Select Character Table	E-13
1B 77 00 / 1B 77 01	Cancel / Select Double Height	E-8
1B 78 P_1	Select Character Quality	E-8
1B 24 P_1 P_2	Set Absolute Horizontal Position	E-5
1B 26 00 P_1 P_2 P_3 P_4 P_5 data	Define User Defined Characters	E-6
1B 28 2D P_1 P_2 P_3 P_4 P_5	Select Line Marking	E-6
1B 28 43 P_1 P_2 P_3	Set Page Length in defined Unit	E-11
1B 28 47 P_1 P_2	Select Graphics Mode	E-13
1B 28 55 P_1 P_2	Set Unit	E-12
1B 28 56 P_1 P_2 P_3	Set absolute vertical Print Position	E-12
1B 28 63 P_1 P_2 P_3 P_4 P_5	Set Page Format	E-11
1B 28 74 P_1 P_2 P_3 P_4	Assign Character Table	E-12
1B 28 76 P_1 P_2 P_3	Set relative vertical Print Position	E-11
1B 28 5E P_1 P_2	Print Data as Character	E-12
1B 2A P_1 P_2 P_3 data	Select Various Graphics Modes	E-10
1B 2E P_1 P_2 P_3 P_4 P_5 P_6	Print Raster Graphics	E-13
1B 3A 00 P_1 00	Copy ROM Character Set to RAM	E-6
1B 3E 4B P_1	Reassign Graphics Mode K	E-9
1B 3E 4C P_1	Reassign Graphics Mode L	E-9
1B 3E 59 P_1	Reassign Graphics Mode Y	E-9
1B 3E 5A P_1	Reassign Graphics Mode Z	E-9
1B 42 P_1....P_{16} 00	Set Vertical Tabs	E-3
1B 43 00 P_1	Set form Length in Inches	E-3

Hex Code	Format	Page
1B 44 P_1 P_2...P_{32} 00	Set Horizontal Tabs	E-9
1B 4B P_2 P_3 data	Standard Density Graphics Mode	E-13
1B 4C P_2 P_3 data	Double Density Graphics Mode	E-13
1B 58 P_1 P_2 P_3	Select Font by Pitch and Point	E-13
1B 59 P_2 P_3 data	Double Speed & Double Density Graph. Mode	E-13
1B 5A P_2 P_3 data	Quadruple Density Graphics Mode	E-13
1B 5B 3B P_2 73	AGC / PCC Procedure	E-5
1B 5B 3B P_2 77	Set Code Table	E-21
1B 5B 3B P_2 3B P_3 3B P_4 3B P_5 3B P_6 3B P_7 20 7A	Barcode Printing	E-22
1B 5B 3C 73	Eject Form	E-20
1B 5B 3E 73	Insert Form	E-20
1B 5B 3E P_1 3B P_2 3B P_3 3B P_4 73	Select Paper Source and Insert Form	E-4
1B 5B 3E 30 68	Set Mode Barcode	E-22
1B 5B 3E 30 6C	Reset Mode Barcode	E-22
1B 5B P_1 20 58	Select Print Quality	E-20
1B 5B P_1 3B P_2 20 72	Select Makro and Change Emulation	E-20
1B 5B P_1 3B P_2 20 42	Graphic Size Modification	E-11
1B 5B P_1 3B P_2 77	Set National Version and Code Table	E-21
1B 5B P_1 3B P_2 78	Select Font and Character Pitch	E-12
1B 5B P_1 77	Set National Version	E-21
1B 5C P_1 P_2	Set Relative Horizontal Position	E-6
1B 62 P_1 00	Clear Vertical Tabs in Channel P_1	E-4
1B 62 m P_1 P_2...P_9 00	Set Vertical Tab in Channel P_1	E-4
1B 63 P_1 P_2	Set Horizontal Motion Index (HMI)	E-17

Hex - Decimal Conversion Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	269	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Appendix F Barcode Quick Reference

Introduction

The barcode print facility is available in all three emulations.

Programming
There are three escape sequences to print barcodes

The first sequence is to define the Barcode Header. The type of barcode as well as all parameters are selected by a header. The header does not affect any parameters outside the barcode application and remains valid until another header is transmitted or the printer is turned off. This can be done at any time but before barcode printing.

The header has the following format:
ESC [; P2 ; P3 ; P4 ; P5 ; P6 ; P7 ␣ z Note: ␣ = Space

In step two, the ESC-sequence „Set Mode Barcode (SMBC)“ starts the barcode printing.
ESC [? 0 h

Finally, the ESC-sequence „Reset Mode Barcode (RMBC)“ will stop printing.
ESC [? 0 l

Note: Between SMBC and RMBC are only printable characters tolerated (no CR or LF).

Barcode Header

Format	Function/Parameter	Hex Code
BH	Barcode Header P_2 = Barcode type; P_3 = Height of barcode; P_4 = Width of thin bars; P_5 = Width of thin gaps; P_6 = Ratio width to height; P_7 = Uni/Bidirectional printing	1B 5B 3B P_2 3B P_3 3B P_4 3B P_5 3B P_6 3B P_7 20 7A
SMBC	Start of Barcode	1B 5B 3F 30 68
RMBC	Stop Barcode	1B 5B 3F 30 6C

Barcode Header Parameters

Barcode Type

Parameter	Description	Function
P2	***Barcode Type***	Horizontal, Vertical with or without readable Text • default = 101 (Code 39 horizontal

Type	horizontal	horizontal + human readable text	vertical	vertical + human readable text
Code 39	101	201	301	401
2 of 5 industrial	102	202	302	402
2 or 5 interleaved	103	203	303	403
Codabar (Monarch)	104	204	304	404
EAN 8	105	205	not applicable	not applicable
EAN 13	106	206	not applicable	not applicable
Code 93	107	207	307	407

Type	horizontal	horizontal + human readable text	vertical	vertical + human readable text
MSI Mod 10/10	108	208	308	408
UPC-E	109	209	not applicable	not applicable
UPC-A	110	210	not applicable	not applicable
Code 128 (EAN 128)	111	211	311	411
Postnet	112	not applicable	not applicable	not applicable
KIX RM4SCC, U.K.	113	not applicable	not applicable	not applicable

Barcode Height

Parameter	Description	Function
P3	***Height of barcode***	• default: $^{3}/_{12}$ „ - 0.64 cm All characters in a line are automatically repeated according to the selected barcode height. This is also true for plain text! P3 * $^{1}/_{12}$ “ – possible values from: 0 to 40 (30_H to 34_H30_H) or (48_D to 52_D48_D) for vertical barcodes 0 to 99 (30_H to 39_H39_H) or (48_D to 57_D57_D) for horizontal barcodes

Barcode	Height in % of barcode length	minimum height in mm
Code 39	25	20 (0.8")
Codabar	25	20 (0.8")
Code 93	15	6.25 (0.25")
Code 128	15	6.25 (0.25")

Barcode Width (Thin bars)

Parameter	Description	Function
P4	***Width of the thin bars***	• default: $^{2}/_{144}$ = 0.35 mm ***Note:*** The width of bars and gaps should be equal. For this, the parameters P4 and P5 should not deviate more than one step

for horizontal Barcode

P4	hex	dec	inch	mm
0	30	48	2/144	0,35
1	31	49	3/144	0,53
2	32	50	4/144	0,70
3	33	51	5/144	0,88
4	34	52	6/144	1,05
5	35	53	7/144	1,23
6	36	54	8/144	1,41
7	37	55	9/144	1,58

for vertical Barcode

P4	hex	dec	inch	mm
0	30	48	2/180	0,28
1	31	49	3/180	0,42
2	32	50	4/180	0,56
3	33	51	5/180	0,70
4	34	52	6/180	0,85
5	35	53	7/180	0,99
6	36	54	8/180	1,12
7	37	55	9/180	1,27

Barcode Width (Thin gaps)

Parameter	Description	Function
P5	***Width of the thin gaps***	• default: $^{2}/_{180}$ = 0.35 mm ***Note:*** The width of bars and gaps should be equal. For this, the parameters P4 and P5 should not deviate more than one step

for horizontal Barcode

P4	hex	dec	inch	mm
0	30	48	2/144	0,35
1	31	49	3/144	0,53
2	32	50	4/144	0,70
3	33	51	5/144	0,88
4	34	52	6/144	1,05
5	35	53	7/144	1,23
6	36	54	8/144	1,41
7	37	55	9/144	1,58

for vertical Barcode

P4	hex	dec	inch	mm
0	30	48	2/180	0,28
1	31	49	3/180	0,42
2	32	50	4/180	0,56
3	33	51	5/180	0,70
4	34	52	6/180	0,85
5	35	53	7/180	0,99
6	36	54	8/180	1,12
7	37	55	9/180	1,27

Barcode Ratio Width to Thin

Parameter	Description	Function
P6	***Ratio Width to Thin***	• default: **0** (2 to 1))

P6	Code 39 2 of 5 industrial 2 of 5 interleaved Codabar Code 93 MSI mod 10/10 Code 128	EAN 8 EAN 13 UPC-A UPC-E
0	2.0 to 1	SC3
1	2.5 to 1	SC6
2	3.0 to 1	SC9
3	3.5 to 1	SC3

Note: Code 93, MSI 10/10, Code 128 are fixed 2.0 to 1
Best results for Code 39, 2 of 5 industrial, 2 of 5 interleaved and Codabar with 2.5 to 1

Barcode Printing Direction

Parameter	Description	Function
P7	***Uni-directional or bi-directional printing***	values are: 0 or not programmed means no changes 1 uni-directional printing in LQ 2 bi-directional printing in LQ 3 uni-directional printing in NLQ 4 bi-directional printing in NLQ

Start Position of Barcode Printing

The start position for barcode printing is the current print position. For both horizontal and vertical printing, the print position after printing barcodes is the same line as the start position next to the barcode printed.

Barcode Programming Examples

Note: All examples are coded in standard uni-directional printing - that means the parameter "P7" is not used.

In the following examples, stands for "Space".
print position. The red ■ square before and after the printed
barcode indicates the actual print position.
Between Start Barcode and Stop Barcode are only printable characters tolerated
(no CR or LF).

Barcode Example for Code 39 (with redable Text)

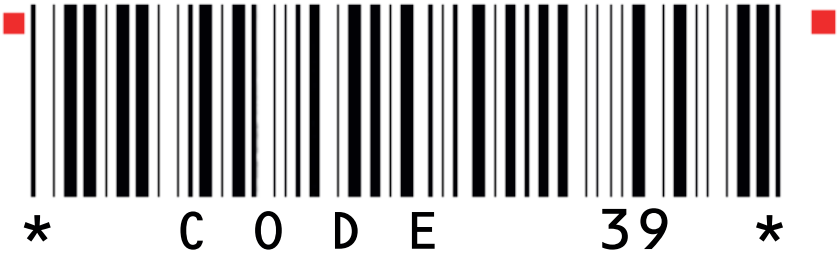
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 201 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 31 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII * C O D E ␣ ␣ 3 9 *

Info: The start / stop characters (*) must be given in the text.

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for 2 of 5 industriel (with redable Text)

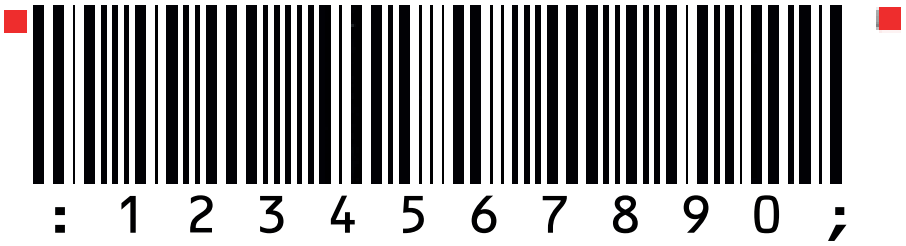
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 202 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 32 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII : 1 2 3 4 5 6 7 8 9 0 ;

Info: The start / stop characters (:/;) must be given in the text.

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for 2 of 5 interleaved (with redable Text)

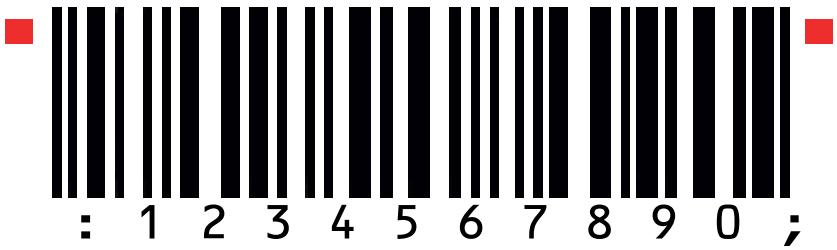
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 203 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 33 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII : 1 2 3 4 5 6 7 8 9 0 ;

Info: The start / stop characters (:/;) must be given in the text.

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for Codabar Monarch (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 204 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 34 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII : 0 1 2 3 4 5 6 7 8 90 ;

Info: The start / stop characters (a/t) must be given in the text.

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Barcode Example for EAN 8 (with redable Text)

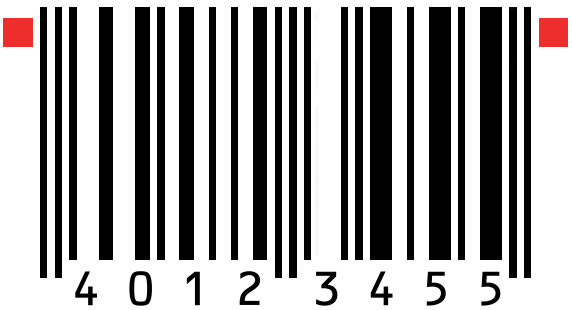
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 205 ;8 ; ; ; ; ␣ z
HEX 1B 5B 3B 32 30 35 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 4 0 1 2 3 4 5 5

Info: No Start or Stop character needed

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for EAN 8 ADD-2 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 205 ;8 ; ; ; ; ␣ z
HEX 1B 5B 3B 32 30 35 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 4 0 1 2 3 4 5 5 1 2

Info: No Start or Stop character needed

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Barcode Example for EAN 8 ADD-5 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 205 ;8 ; ; ; ; ␣ z
HEX 1B 5B 3B 32 30 35 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 4 0 1 2 3 4 5 5 8 6 1 0 4

Info: No Start or Stop character needed

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Barcode Example for EAN 13 (with redable Text)

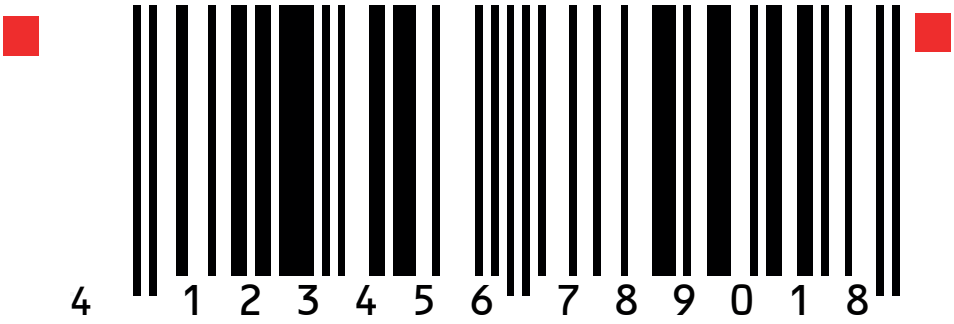
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 206 ;8 ; ; ; ; ␣ z
HEX 1B 5B 3B 32 30 36 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 4 1 2 3 4 5 6 7 8 9 0 1 8

Info: No Start or Stop character needed

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for EAN 13 ADD-2 (with redable Text)

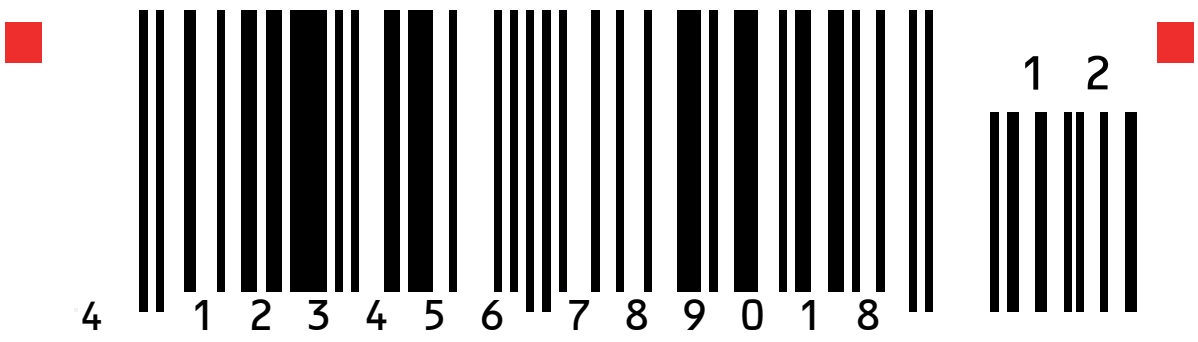
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 206 ;8 ; ; ; ; ␣ z
HEX 1B 5B 3B 32 30 36 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 4 1 2 3 4 5 6 7 8 9 0 1 8 1 2

Info: No Start or Stop character needed

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for EAN 13 ADD-5 (with redable Text)

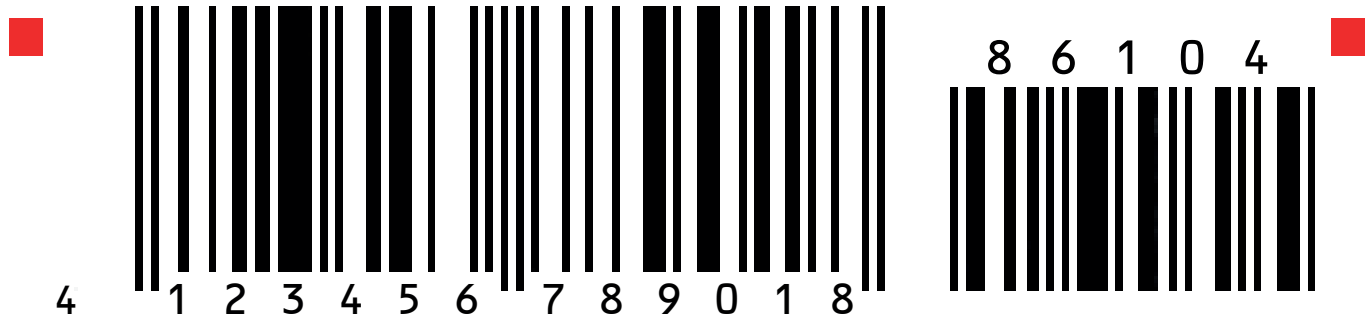
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 206 ;8 ; ; ; ␣ z
HEX 1B 5B 3B 32 30 36 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 4 1 2 3 4 5 6 7 8 9 0 1 8 8 6 1 0 4

Info: No Start or Stop character needed

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for Codabar Monarch (with redable Text)

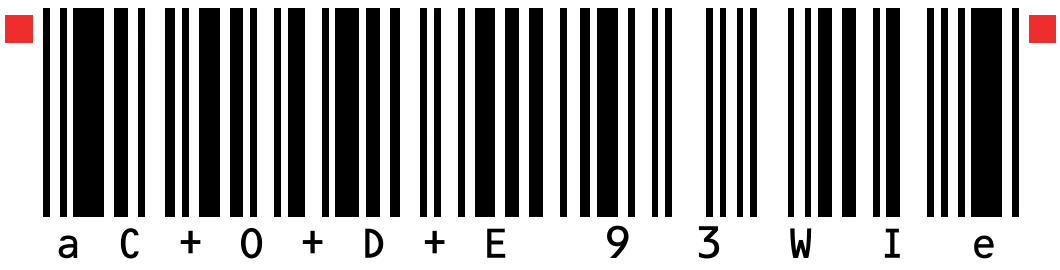
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [; 207 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 37 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII a C + O + D + E ␣ 9 3 W I e

Info: The start / stop characters (a/e) must be given in the text.

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for MSI Mod 10/10 (with redable Text)

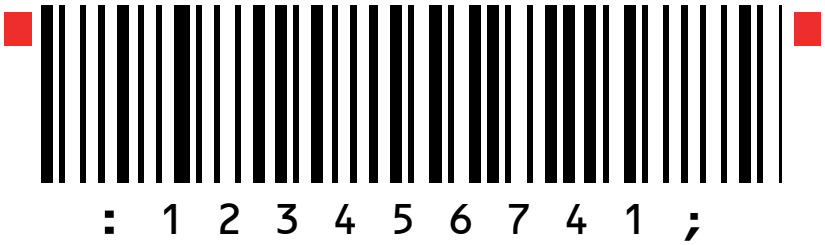
Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC[; 208 ;8 ; ; ; ; ␣ z
HEX 1B 5B 3B 32 30 38 3B 38 3B 3B 3B 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 1 2 3 4 5 6 74 1

Info: The start / stop characters (:/;) must be given in the text.

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



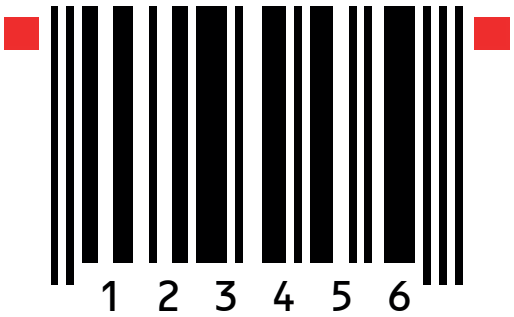
Barcode Example for UPC-E (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;209 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 39 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 0 1 2 3 4 5 6 5

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for UPC-E ADD-2 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;209 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 39 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 0 1 2 3 4 5 6 5 1 2

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Barcode Example for UPC-E ADD-5 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;209 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 30 39 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 0 1 2 3 4 5 6 5 8 6 1 0 4

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Barcode Example for UPC-A (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;210 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 31 30 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 1 2 3 4 5 6 8 9 0

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Barcode Example for UPC-A ADD-2 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;210 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 31 30 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 1 2 3 4 5 6 8 9 0

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

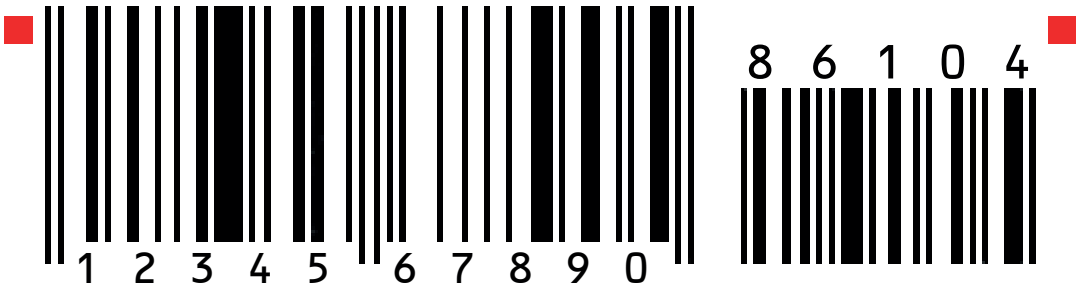
Barcode Example for UPC-A ADD-5 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;210 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 31 30 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 1 2 3 4 5 6 8 9 0 8 6 1 0 4

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



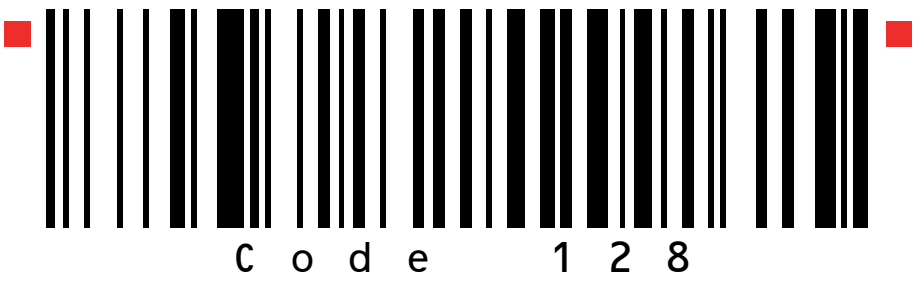
Barcode Example for Code 128 (with redable Text)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;211 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 31 31 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII Code 128

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



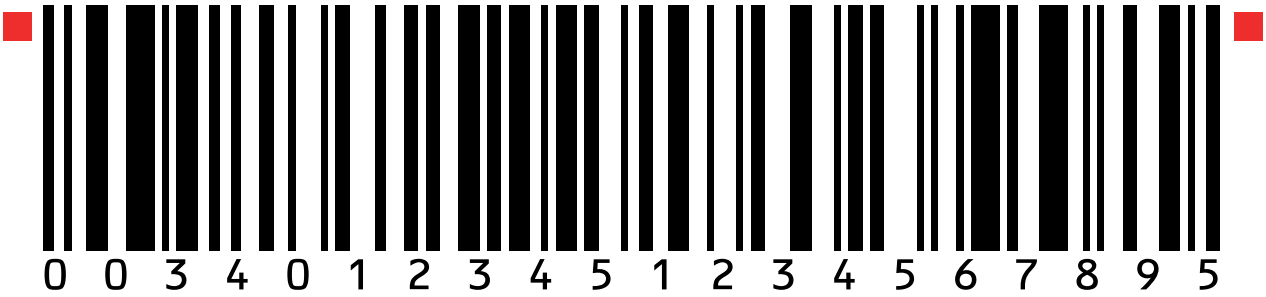
Barcode Example for Code 128 (with redable Text)
Code 128 using FNC1 = Coding] C 1

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;211 ;8 ;1 ; 1; 1 ; ␣ z
HEX 1B 5B 3B 32 31 31 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII **] C 1 0 0 3 4 0 1 2 3 4 5 1 2 3 4 5 6 7 8 9 5**

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C



Barcode Example for POSTNET

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;212 ; ; ; ; ; ␣ z
HEX 1B 5B 3B 32 31 32 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 1 2 3 4 5 6 7 8 9 0 1

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

Data: ASCII CR CR LS
Mark Pollan CR LF
101 main St CR LF
Anytown US 12345-6789 CR LF

Mark Pollan
101 main St
Anytown US 12345-6789

Barcode Example for KIX - PTT, Post Nederland (Klant IndeX) RM4SCC, U.K. (Royal Mail 4 State Customer Code)

Barcode Header: ESC[; P2 ; P3 ; P4 ;P5 ; P6 ;P7 ␣ z
ASCII ESC [;213 ; ; ; ; ; ␣ z
HEX 1B 5B 3B 32 31 32 3B 38 3B 31 3B 31 3B 31 3B 20 7A

Start Barcode: ASCII ESC [? 0 h
HEX 1B 5B 3E 30 68

Data: ASCII 1 2 3 4 5 6 7 8 9 0

Stop Barcode: ASCII ESC [? 0 l
HEX 1B 5B 3E 30 6C

All Barcodes can also be printer in landscape mode, depanding on Barcode Header.