



Transfer Printer BP-PR PLUS Series

Configuration Instructions

Edition 01/10

Information on the scope of delivery, appearance, performance, dimensions and weight reflect our knowledge at the time of printing. We reserve the right to make modifications.

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Edition 01/10



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Approvals

The transfer printers comply with the following regulatory guidelines:

EUROPE

Directive 2006/95/EC relating to electrical equipment designed for use within certain voltage limits:

EN 60950-1:2006

EN 61558-1:2005

Directive 2004/108/EC relating to electromagnetic compatibility:

EN 55022:2006

EN 55024:1998+A1:2001+A2:2003

EN 61000-3-2:2006

EN 61000-3-3:1995+A1:2001+A2:2005

UNITED STATES

FCC Class A Notice (Printer with Optional Cutters, Type CU X, PCU X)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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 it is not installed and used in accordance with the instruction manual, it 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/her own expense.

Modifications: Any modifications made to this device that are not approved by the Brady Corporation may void the authority granted to the user by the FCC to operate this equipment.

CANADA

ICES-003 Class A Notice, Classe A (Printer with Optional Cutters, Type CU X, PCU X)

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

Batteries Directive 2006/66/EC



This product contains a lithium battery. The crossed-out wheeled bin is used to indicate 'separate collection' for all batteries and accumulators in accordance with European Directive 2006/66/EC. Users of batteries must not dispose of batteries as unsorted municipal waste. This Directive determines the framework for the return and recycling of used batteries and accumulators that are to be collected separately and recycled at end of life. Please dispose of the battery according to your local regulations.

Notice to Recyclers

To remove the lithium battery:

1. Disassemble printer and locate the lithium cell battery located on the main circuit board.
2. To remove, slide the battery from the coin cell retainer, remove the battery from the board, and dispose of properly.

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1 Product Description

1-1 Overview

The **BP-PR PLUS Series** transfer printers can be operated in thermal direct or transfer print mode. With thermal printing, heat from the printhead results in printing to a heat-sensitive print medium. With thermal transfer printing, heat from the printhead causes the color layer of a transfer ribbon to be transferred to the print medium.

The printers are equipped with every common interface to ensure trouble-free connection to computers and networks. When using a memory card, the printers can also operate in standalone mode. By connecting a keyboard, variable data can also be entered conveniently in standalone mode.

The printers can be connected to AC mains networks from 100 V to 240 V without any kind of adapter.

The large graphic LCD display and the context-controlled navigator pad allow the printers to be monitored and operated efficiently. A variety of accessories allows the printers to be adapted to different product requirements.

1-2 Device Types

The printers are available in a variety of models with different features.

1-2-1 *Standard Version*

The standard version is used for printing labels or endless media on rolls or fanfolds.

In **Tear-off mode**, labels are removed by hand. Because there is no internal rewinder, automatic peeling off of the labels from the liner (peel-off mode) and internal rewinding are not possible.

The labels can be cut off automatically with the 'cutter' accessory. For details, see documentation of the cutter.

The labels can be wound up with the 'external rewinder' accessory. For details, see documentation of the external rewinder.

1-2-2 Peel-off Version

The peel-off version is prepared for peel-off mode and thus has an internal rewinder and a pulling system comprised of a rewind assist roller and a locking system. Printing on labels or endless media from rolls or fanfolds is possible.

Operation in **Tear-off mode** and with the 'cutter' or 'external rewinder' accessory is possible by installing the tear-off plate (see "Operating Instructions"), as it is with the standard version.

In **peel-off mode**, the label is peeled off the liner after printing. The label can be removed by hand with the peel-off sensor (accessory). The liner is rolled up via the internal rewinder.

For use in **Internal Rewind mode**, remove the locking system and replace the dispense plate with a rewind guide plate. See "Operating Instructions".

1-2-3 Overview of Types

Characteristics	BP-PR PLUS Series		
Max. medium width in [mm]	120		
Print resolution [dpi]	203	300	600
Printing width in [mm]	104	105.6	105.6
Max. print speed in [mm/s]	250	250	100
Standard version transfer printer	BP-PR 200 PLUS	BP-PR 300 PLUS	BP-PR 600 PLUS
Peel-off version transfer printer	BP-PR 200 PLUS-P	BP-PR 300 PLUS-P	BP-PR 600 PLUS-P

Table 1. Overview of BP-PR PLUS Series printer types

1-3 Technical Data

		■ Standard		□ Option
		BP-PR 300 PLUS	BP-PR 600 PLUS	BP-PR 360 PLUS
1. Printhead				
Printing Method	Thermal Direct	■ ■	■ ■	■ ■
Print Resolution (dpi)		300	600	300
Print Speed (up to mm per s)		250 mm (9.8 in.)	100 mm (3.9 in.)	200 mm (7.9 in.)
Print Width		105.6 mm (4.2 in.)	105.6 mm (4.2 in.)	162.6 mm (6.4 in.)
2. Material				
Material Thickness (mm/in. – weight g/m ²)		0.055 - 1.2 mm (.002 - 0.5 in.) – 60-300 g/m ²		
Label Width ¹		20 - 116 mm (.8 - 4.5 in.)		50 - 176 (2 - 7 in.)
Width of Liner or of Continuous Material		25 - 120 mm (1 - 4.7 in.)		50 - 180 (2 - 7 in.)
Shrinkable Tubing		25 - 110 mm (1 - 4.3 in.)		-
Label Height		4 - 1000 mm (0.1 - 39 in.)		6 - 1000 (0.2 - 39 in.)
Label Height when dispensing ¹		12 - 200 mm (0.5 - 8 in.)		25 - 200 mm (1 - 8 in.)
Media Roll:	Total Diameter (up to)	205 mm (8 in.)		
	Core Diameter	38 - 100 mm (1.5 - 3.9 in.)		
	Winding Direction	Inside or Outside		
3. Ribbon				
Ink		Inside or Outside		
Roll Diameter (up to)		80 mm (3.1 in.)	80 mm (3.1 in.)	72 mm (2.8 in.)
Core Diameter (up to)		25 mm (1 in.)	25 mm (1 in.)	25 mm (1 in.)
Ribbon Length variable (up to)		500 mm (19.7 in.)	500 mm (19.7 in.)	360 mm (14.1 in.)
Width (up to)		56 mm (2.2 in.)		165 mm (6.5 in.)
4. Internal Rewinder (peel-off version only)				
Total Diameter (up to)		142 mm (5.6 in.)		
Core Diameter		38,1 mm (1.5 in.)		
Winding Direction		Outside only		
5. Printer Dimensions				
Height x Depth		274 x 446 mm (10.8 x 17.6 in.)		395 x 554 mm (15.6 x 21.8 in.)
Width		242 mm (9.5 in.)		302 mm (11.9 in.)
Weight		9 kg (20 lb)		13 kg (29 lb)
6. Label Sensor				
See-through Sensor		for leading edge of the label or punching marks and end of material		
Reflective Sensor (from bottom / from top)		for printing marks		
Distance to Locating Edge		5 - 53 mm (0.2 x 2 in.)		-
Distance from Center to Left		-		
7. Electronics				
Processor		High speed 32 Bit ColdFire 266 MHz Clock rate		
RAM (MB)		64 MB		
Memory IFF MB Flash		8 MB		
Slot for Memory CompactFlash-Card Type 1		■		
Slot for Wireless LAN Card		■		
Battery Cache for		Real-time clock, printout of time and date Storage of data with shut-down		
Warning Signal		Acoustic signal when error		
8. Interfaces				
Centronics bi-directional acc, IEEE 1284		□		
RS232C 1,200 up to 230,400 Baud/8-Bit		■		
USB 2.0 High Speed Slave for PC Connection		■		
Ethernet 10/100 Base T, LPD, RAW-IP, ftp-Printing, DHCP, HTTP, FTP, SMTP, SNMP, TIME, Zeroconf, mDNS, SOAP		■		
RS422, RS485 1,200 up to 230,400 Baud/8-Bit		□		
Peripheral Connection		■		
WLAN Card 802.11b/g WEP/WPA PSK (TKIP)		□		
2 x USB mater for		external operation panel, keyboard, scanner, service key		
9. Operational Data				
Power Supply		100 - 240 V – 50/60 Hz, PFC		
Power Consumption		300 W max.		
Operating Temperature		10° - 35° C (50 - 95° F)		
Humidity		30 - 85% non-condensing		
Approvals		CE, FCC class A, CB, CCC, UL		
10. Operation Panel				
Buttons/LED Display		Pause, Feed, Cancel, Menu, Enter, 4 x Cursor		
LCD Graphic Display		Text 4 lines, ca. 20 digits per line		
Width x Height		60 x 40 mm (2.4 - 1.6 in.)		
1) Depending on label size, material and adhesive limitations are possible. Critical material or applications have to be tested and cleared.				
Note: The technical data specifications reflect the knowledge available at the time of printing. We reserve the right to make modifications.				

Table 2. Technical Data

11. Settings	
	Time, Date, Digital or Analog Clock
	25 Language Settings
	System Settings, Print Parameters, Interfaces, Security
12. Monitoring	
Stop printing if:	End of Ribbon End of Labels Printhead Open
On the display:	Data Reception Remaining Ribbon Quantity WLAN Field Intensity Clock Ethernet State Data Sheet Used Memory abc Debug Temperature Printhead Input Buffer Access to Memory Card
13. Test Routines	
System Diagnosis	When switched on with testing of printhead.
Short Status, Status Print	Font list, device list, WLAN state, profile of label, test grid, monitor mode, PPP state.
Status Reports	Extensive status print with information about setting (e.g., print length counter, runtime counter, etc.). Request of machine state via software command. Detailed status messages on the display (e.g., network error-no-link, barcode error, etc.).
14. Fonts	
Font Types	5 Bitmap fonts, incl. OCR-A, OCR-B and 3 Vector fonts: Swiss 721, Swiss 721 Bold and Monospace. 821 available internally, loadable TrueType fonts. Optional Chinese (simplified), Optional Thai
Character Sets	Windows 1250 up to 1257, DOS 437, 737, 775, 850, 852, 857, 862, 864, 866, 869, EBCDIC 500. ISO 8859-1 up to -10 and -13 up to -16, WinOEM 720, UTF-8, Macintosh Roman, DEC MCS, K018-R. All West and East European Latin, Cyrillic, Greek, Hebrew and Arabic characters are supported. Optional Chinese (simplified) and Thai.
Bitmap Fonts	Size of width and height 1-3 mm (0.04 - 0.1 in.) zoom 2-10 Orientation 0°, 90°, 180°, 270°
Vector-/TrueType Fonts	Size of width and height 0.9 - 128 mm (0.04 - 5 in.) variable zoom, Orientation 360° in steps of 1°.
Font Formats	Bold, italic, underlined, outline, negative, grey, vertical, depending on character fonts
Font Width	Variable

15. Graphics	
Graphic Elements	Line, arrow, box, circle, ellipse, filled and filled with fading
Graphic Formats	PCX, IMG, BMP, TIF, MAC, GIF, PNG
16. Codes	
Linear Barcodes	Code 39, Code 93 HIBC
	Code 39 Full ASCII Interleaved 2/5
	Code 128 A, B, C Indent- and Leader Code of Deutsche Post AG JAN 8, 13
	Codabar MSI
	EAN 8, 13 Plessey
	EAN/UCC 128 Postnat
	EAN/UPC Appendix 2 RSS 14
	EAN/UPC Appendix 5 UPC A, E, E0
	FIM
2D-Codes	Aztec, Codablock F, Data Matrix, PDF-417, Micro PDF 417, UPS Maxicode, QR-Code, RSS 14 truncated, limited, stacked and stacked omnidirectional, EAN-Datamatrix, GS1 Data Bar All codes variable in height, module width and ratio. Orientation 0°, 90°, 180°, 270°. Optionally with check digit, printed characters and Start/Stop code depending on code type.
17. Software	
Programming	J-Script Direct Programming abc Basic Compiler
Label Software	Codesoft, LabelMark and BradySoft
Windows Driver	2000, XP 32/64 bit, 2003 32/64 bit, Vista 32/64 bit
Stand-alone Operation	■

Note: The technical data specifications reflect the knowledge available at the time of printing. We reserve the right to make modifications.

Accessories	
Auto and Perforation Cutter	<input type="checkbox"/>
Present Sensor PS8 - Manual Operation	<input type="checkbox"/>
Present Sensor PS6 (with internal rewinder) - Automatic Operation	<input type="checkbox"/>
External Unwinder	<input type="checkbox"/>
External Rewinder	<input type="checkbox"/>
CompactFlash-Card Type I	<input type="checkbox"/>
PC-Card Type II	<input type="checkbox"/>
1) Depending on label size, material and adhesive limitations are possible. Critical material or applications have to be tested and cleared.	

Table 3. Technical data (continued)

1-4 Parts of the Printer

i The following illustrations show the important parts for the example using the printer with internal rewinder (peel-off version). The details of other printer versions may vary. Major differences are indicated in the following.

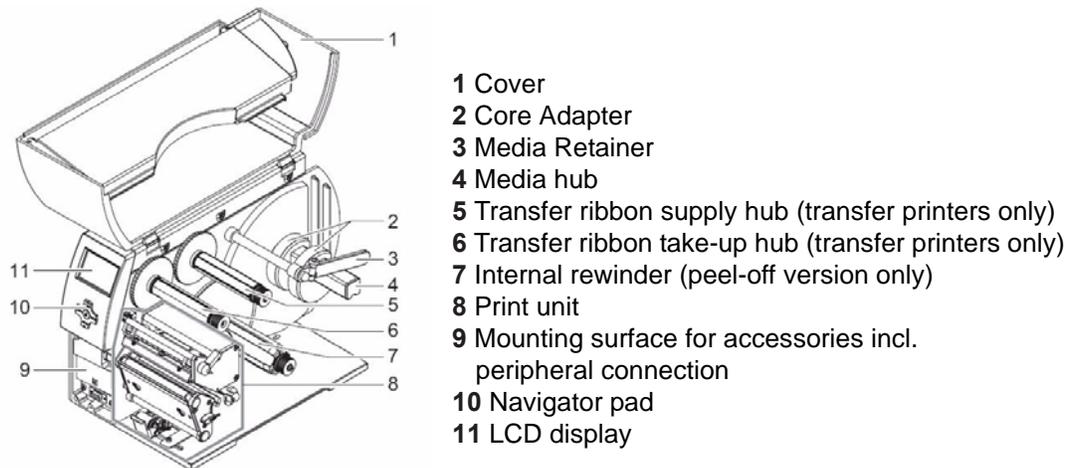


Figure 1. General Overview

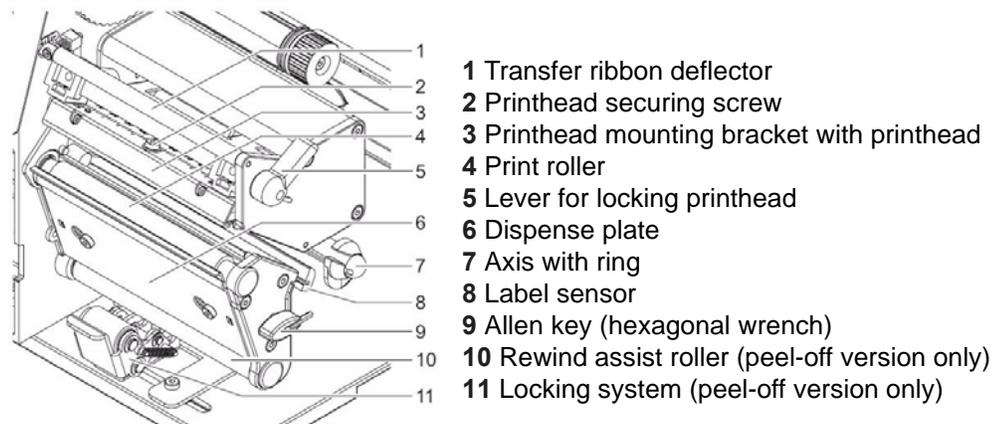


Figure 2. Print unit for Tear-off mode

1-5 Accessories

1-5-1 External Unwinders and Rewinders

A variety of external unwinders and rewinders are available for large print jobs.

1-5-2 Cutter

The cutter accessory cuts labels or endless media right after printing, after a certain number of labels or after the print job. The peripheral connection of the printer is used for power supply and printer control.

1-5-3 Peel-off Modules

1-5-3-1 Peel-off Sensor PS 8 for Manual Removal

The sensor detects the label in peel-off position and interrupts the print job. Once the label is removed manually, the next label is printed immediately.

1-5-3-2 Peel-off Sensor PS 6 for Manual Removal and Automatic Mode

Two operating modes are possible:

- Manual mode: dispensing after removal of the label without connecting the peripherals
- Semi-automatic mode: dispensing upon request from button, foot switch or external control

1-5-4 Memory Cards

With the following memory cards, the printer can be operated in standalone mode without being coupled with a computer:

- CompactFlash type 1 memory card (1 GB max.)
- Type II PC card

Label formats, fonts, texts and graphics on the computer or printer are loaded for this purpose.

1-5-5 External Keyboards

A compact keyboard or numerical keypad for entering alphanumerical or numerical data in standalone mode can be connected to the printer via a USB master interface (see *Connecting External Keyboard*, on page 61).

1-6 Print Media

1-6-1 Printing Methods and Print Media

The printers of the **BP-PR PLUS Series** can be operated both in thermal direct and in transfer mode.

1-6-1-1 Thermal Direct Printing

The label medium is coated with a thermo-reactive material which responds by changing color when heated (e.g. from white to black). The thermal printhead generates the print image via pointwise heating of the label medium.

1-6-1-2 Thermal Transfer Printing

Pointwise heating by the printhead causes color particles from the color coating of a ribbon to be transferred to an uncoated label medium. The ribbon can only be used once for printing. A great variety of media, e.g. normal paper, cardboard and polyester film, are suitable for thermal transfer printing.

i The print quality essentially depends on how well the coloring from the transfer ribbon adheres to the label medium. Ask your dealer for advice when selecting labels and transfer ribbons. Run tests if necessary.

1-6-2 Label Formats

Before ordering label media, note the following permissible dimensions:

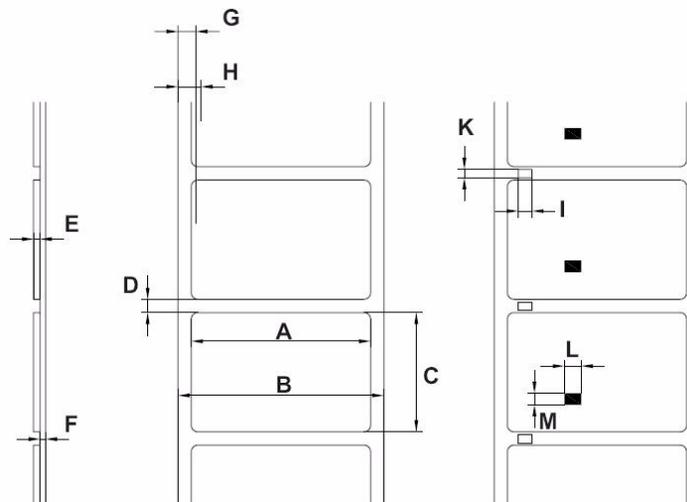


Figure 3. Label Dimensions

Dim.	Designation	Dimensions in [mm]
A	Label width Label width in peel-off mode	4–116 25–116
B	Width of liner or endless medium With a medium thickness of E = 0.07 – 0.25 With a medium thickness of E = 0.25 – 0.35	25–120 10–120
C	Label height Minimum label height Minimum label height in peel-off mode Maximum label height with printhead 203 dpi Maximum label height with printhead 300 dpi Maximum label height with printhead 600 dpi	5 12 2000 2000 1000
D	Label gap	2–1000
E	Label thickness	0.07–0.35
F	Liner thickness	0.07–0.35
G	Distance from 1st heating point to edge of liner	2
H	Distance from label sensor to edge of liner	5–53
I	Width of perforation mark	>5
K	Height of perforation mark	2–10
L	Width of reflex mark	>5
M	Height of reflex mark	2–10

Table 4. Permissible Label Dimensions

1-6-3 Transfer Ribbons

Select transfer ribbons which are only a little wider than the labels:

- If a ribbon is too narrow, the printhead comes into contact with the labels ⇒ wear
- If a ribbon is too wide, there is a risk of wrinkling _ print image errors

Detection of the transfer ribbon occurs via checking the rotation of the transfer ribbon supply hub. To print all labels up to the end of the transfer ribbon cleanly, the trailer tape may not be longer than 60 mm. It must be possible to easily remove the end of the transfer ribbon from the cardboard core.

1-7 Software

You can use several methods to control the printer and create label layouts.

1-7-1 *Direct Programming*

The printer has an extensive command set for creating label layouts. With a text editor, the printer commands can be combined in a file. This label programming can then be sent to the printer via a data interface (e.g. via the DOS command COPY). The description of direct programming is found in the *"Programming Manual"*.

1-7-2 *Windows Printer Driver*

You can obtain printer drives for various versions of Windows from your dealer or the internet. Using the printer driver, you can control the printer from almost any Windows application. Functionality depends on the selected application. Use of the printer driver is explained in the online help.

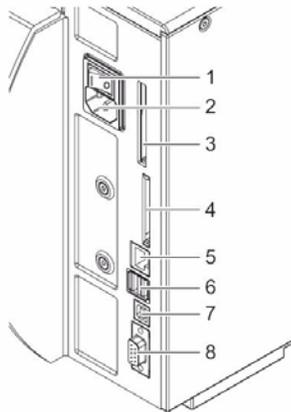
1-7-3 *Label Software*

A variety of label programs which are adapted to the specific requirements of label printing are offered for convenient label layout designs. Many programs use the printer driver. Some programs already have their own driver for printers of the **BP-PR PLUS Series**. These programs offer the greatest possible convenience when creating and printing labels.

2 Connecting Printer to Computer

You can choose from the following options for connecting a computer to the printer:

- Direct connection to the serial RS-232 interface (8) (see 2-1, on page 11).
- Direct connection to the Ethernet interface (5) (see 2-2, on page 12).
- Connection via a computer network to the Ethernet interface (5) (see 2-2, on page 12).
- Direct connection to a high-speed USB slave interface (7) (see 2-3, on page 13).



- 1 Power switch
- 2 Power connection jack
- 3 Slot for type II PC card
- 4 Slot for a CompactFlash memory card
- 5 Ethernet 10/100 Base-T
- 6 Two USB master interfaces for keyboard, scanner or service key
- 7 High-speed USB slave interface
- 8 Serial RS-232 C interface

Figure 4. Power and computer connections



Insufficient or missing grounding can cause faults during operation.
Ensure that all computers and connection cables connected to the printer are grounded.

2-1 Connecting Printer via Serial RS-232 Interface

2-1-1 Connecting Printer

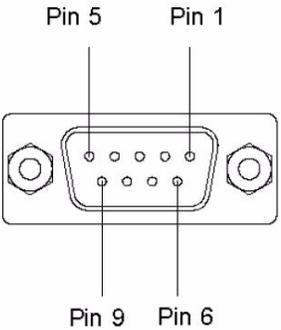
The RS-232 interface is operated via an RS-232 cable.

1. Connect computer and printer with a suitable cable.
2. Secure cable connections with the screws found at the plugs.
3. Configure the RS-232 interface of the printer to match the settings of the connected computer (see 4-1-4, on page 21).

If problems occur, contact the computer manufacturer for interface assignments and note the pin assignment of the SUB-D jack described in Table 5 on Page 15.

2-1-2 Pin Assignment of Connection Jack of the RS-232 Interface

On the back of the printer there is a 9-pin SUB-D jack for the serial RS-232 interface.

 <p>Figure 5. Pin assignment of the 9-pin SUB-D jack</p>	Pin	Designation	Function
	1	CD	Carrier Detect
	2	TxD	Transmit Data
	3	RxD	Receive Data
	4	DTR	Data Terminal Ready (not connected)
	5	GND	Ground
	6	DSR	Data Set Ready (not connected)
	7	RTS	Request To Send
	8	CTS	Clear To Send
	9	RI	Ring Indication (not connected)

2-2 Connecting Printer via Ethernet Interface

To connect the printer to a network jack, you will require a patch cable with an RJ45 plug for 10 Base T or 100 Base T. For direct connection of the printer to the Ethernet card of a local computer, you will need an appropriate crossover cable.

i A shielded cable must be used to connect the printer to the network.

1. Connect computer and printer with a suitable cable.
2. Make basic settings for operation of the Ethernet interface (see 4-1-4, on page 21).
3. Call up the printer website (see 4-2-1, on page 258).
4. Open the "Setup" tab on the printer website.
5. Set the parameters described in Table 14 on Page 32 in the path **Setup > Interfaces > Ethernet**.
6. Click **Set** on the "Setup" tab.
7. Enter PIN and click **Confirm** (see 4-1-6, on page 24).
8. Set up print service if necessary (see 2-2-2, on page 13).
9. Adjust Windows printer setting (see 2-2-2, on page 13).

i Do **not** change the settings of the "IP" and "Gateway" on the printer website, as otherwise the connection to the printer may be lost

2-2-1 Print Services Raw-IP and LPD in MS Windows

The print services Raw-IP and LPD are not available in all operating systems. In general, special tools are required to set up print services. Information on this can be obtained from your dealer.

Print service	Windows 2000	Windows XP	Windows Vista	Windows 7
Raw-IP	Not available	Available	Available	Available
LPD	Available, but not installed	Available	Available	Available

Table 5. Availability of print services Raw-IP and LPD in Windows

Windows 2000 offers the port monitor SPM (Standard Port Monitor) which is installed automatically when setting up the TCP/IP protocol. The SPM can be configured for Raw-IP or LPD.

Information on installation can be obtained from the Windows documentation.

During the installation of both print services, additional connections for print output are set up:

- ⇒ Raw-IP: Enter the same port address in the printer which you have selected during installation.
- ⇒ LPD: "lp" (line printer) must be entered as the name of the printer on the computer (queue name).

2-2-2 Adjusting Windows Printer Setting

If the printer driver valid for your Windows version is installed on your computer, you can use the Windows standard applications to edit the label contents and to start the print jobs. To use the Raw-IP or LPD print services, you must adjust the Windows printer settings:

1. Open the folder containing the printers via **Start > Settings > Printers**.
2. Right-click the icon of the printer. A pop-up menu appears.
3. Select "Properties" in the pop-up menu.
4. Open the "Details" or "Connections" tab.
5. This tab contains, among other things, the connections which were also set up when the print services were installed. The names of these connections depend on the installation tool used.
6. Select the Raw-IP or LPD connection.
7. Click **OK**.

2-3 Connecting Printer via USB Interface

The high-speed USB interface allows the printer to be operated via a USB interface of a computer running the operating system Windows 2000, Windows XP, Windows Vista or Windows 7.

A printer driver must be installed if a USB interface will be used for connection..

1. Switch printer off.
2. Connect computer and printer with an A-B cable.
3. Switch computer on.
4. Place the CD-ROM with the Windows driver in the CD-ROM drive.
5. Exit all programs currently running.
6. Switch printer on. The Windows Installation Wizard is started automatically.
7. Follow the on-screen instructions. The source of the installation file is "D:\WINDRV\9X2000XP", where D is the letter of the CD-ROM drive used.
8. If the "Has Not Passed Windows Logo Testing" error message appears during installation, continue with the installation anyway.
After successful installation, an icon for the printer appears in the Windows "Printer" system folder.
9. Click icon in "Printer" system folder and make printer settings if necessary.

3 Offline Menu

3-1 Structure of the Offline Menu

The offline menu contains setting options on several levels for configuring the printer to meet your needs. In addition, the offline menu features test functions for supporting the configuration or checking the function of the printer. Using status functions, the set parameters can be displayed or printed.

	1st Menu Level	2nd Menu Level	Access
	Memory Card	 Label from card	Only with memory card inserted
		 Print directory	Only with memory card inserted
		 Copy memory card	Only with memory card inserted, PIN protection possible
		 Format card	Only with memory card inserted, PIN protection possible
		 ASCII dump (Card)	Only with memory card inserted
	Short Status		
	Test	 Status print	
		 Font list	
		 Device list	
		 ASCII Dump Mode	
		 Test grid	
		 Label profile	
		 Event log	Only with service key inserted
	Setup	 Local settings	PIN protection possible
		 Machine param.	
		 Print param.	
		 Interfaces	
		 Status line	
		 Security	

	1st menu level		2nd menu level	Access
	Service		Firmware upd.	PIN protection possible
			Firmw. fr. card	PIN protection possible
			Clr. service ctr.	Only with service key inserted
			Adj. gap sensor	Only with service key inserted
			Save settings	Only with memory card inserted, PIN protection possible
			Load settings	Only with memory card inserted, PIN protection possible
			OEM Name	Only with service key inserted
			Cleaning interval	Only with service key inserted

Table 6. Menu structure

3-2 Navigating the Offline Menu

You can control all settings and functions in the offline menu with the navigator pad.

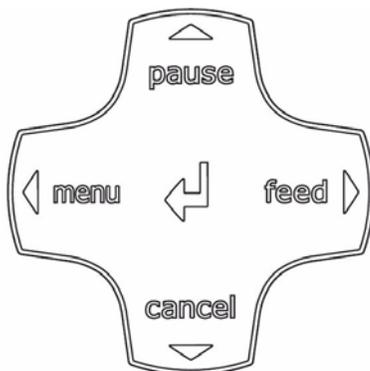


Figure 6. Navigator Pad

- ⇒ Press the **menu** button to switch from **Ready** mode to the offline menu.
- ⇒ Press the ▲ or ▼ button to select menu items on a menu level or to select values on the parameter level.
- ⇒ Press the ◀ button on the top menu level several times, if necessary, to switch from the offline menu to **Ready** mode.
- ⇒ Press the ▲ or ▼ button to reach a higher or lower menu level or to set values on the parameter level.
- ⇒ Press the + button briefly to enable value selection on the parameter level, accept a selected value or start a function.
- ⇒ Press and hold (> 2 sec.) the + button to exit the parameter level without accepting the parameter setting.

i You can also make all settings in the offline menu via the Ethernet interface (see 4-2, on page 25) or via direct control commands (see "Programming Manual").

3-3 Service Key

A service key is required for accessing special service functions not accessible to the operator. This key switches the printer to service mode and enables:

- Access to additional configuration parameters
- Adjustment of the label sensor
- Resetting of the service counter
- Additional information in the status print and in the device list
- Printout of an event list
- Changing of the device name
- Saving and loading of configuration settings
- Access PIN-protected configuration parameters and functions without entering PIN
- Access to configuration parameters for optional assemblies, even if they are not currently installed

3-3-1 Using the Service Key



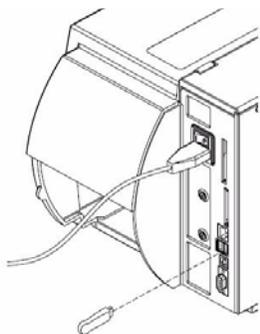
CAUTION!

Incorrect settings and data loss via unauthorized access.

Access protection is deactivated when service key is inserted. Operation of printer by unauthorized persons can lead to incorrect settings and data loss in this case.

⇒ *Provide the service key to authorized persons only.*

⇒ *Remove service key after service work and store it in a secure location.*



⇒ Insert service key into a USB master interface on the back of the printer.

You can also insert the service key while the device is switched on.

Figure 7. Inserting the service key



Contact your dealer for information on how to obtain the service key.

3-3-1-1 Indication in this Document

In this document, parameters and functions which are only accessible when the service key is inserted are indicated using the following note:



Access only when service key is inserted!

4 Configuration

4-1 Configuration via the Operating Panel

A host of parameters for configuring the printer are found in the **Setup** menu of the offline menu. Your printer is mainly configured via the operating panel during initial commissioning and when making major changes to the operational conditions. Changes required for processing different print jobs can be implemented via software settings.

You can protect the **Setup** menu from unauthorized access via a code number (PIN).

4-1-1 Local Settings

1. Press the **menu** button.
2. Select **Setup > Local settings**.

Parameter	Meaning	Default
Country 	Setting the display language and the country-specific date and time formats. You can also overwrite the time formats via software. The changes are not saved permanently, however.	USA
Timezone 	Adaptation of the time display of the printer to the time zone in relation to UTC (Universal Time Coordinated).	UTC + 1
Daylight Saving 	Selection of the daylight saving regulation applicable for the region. The time is then changed automatically.	EU
Set Date 	Setting of the system date in the format DD.MM.YYYY (DD: day, MM: month, YYYY: year). The print output of the date occurs in the format set via the "Country" parameter. You can also change the date via software. The change is not saved permanently, however.	–
Set Time 	Setting the system time in the HH:MM:SS format. When changing the time, ensure that the Timezone , Daylight saving and Set date parameters are set correctly. The time can also be synchronized automatically via the internet using the Ethernet interface. The print output of the time occurs in the format set via the "Country" parameter. You can also change the time via software. The change is not saved permanently, however.	–

Table 7. Parameters of the menu Setup > Local settings

4-1-2 Device Settings

1. Press the **menu** button.
2. Select **Setup > Machine param.**

Parameter	Meaning	Default
Printhead Pos. X 	Shifts entire print image perpendicular to direction of paper flow. The absolute shifting of print image perpendicular to direction of paper flow is limited to the difference between label width and printhead width set in the software. You can also set Printhead pos. X via software. The offset values from Machine param. menu and the software are added together.	0.0 mm
Printhead Pos. Y 	Shifts entire print image in direction of paper flow. With positive values, printing begins later in the direction of paper flow. Shifting the print image in the direction of paper flow also influences the peel and cutting positions. ⇒ Correct the Peel position and Cut position parameters by the same value in the opposite direction. You can also set the Printhead pos. Y via software. The offset values from Machine param. menu and the software are added together.	0.0 mm
Tear-off Pos. 	Shifts the tear-off position in the direction of paper flow. With positive values, the label strip is transported farther out of the printer.	0.0 mm
Demand Sensor 	Configuration of optional peel-off module. See documentation of the peel-off module.  If peel-off module is not connected, access only granted with service key inserted!	
Cutter 	Configuration of the optional cutter. See documentation of the cutter.  If cutter is not connected, access only granted with service key inserted!	
Applicator 	Configuration of the optional applicator. See documentation of the applicator.  If applicator is not connected, access only granted with service key inserted!	
Brightn. LCD 	Brightness of the LCD display from 1 to 10	10
Contrast LCD 	Contrast of the LCD display from 4 to 8.	6
Time Powersave 	Time between last operation and activation of Powersave mode.	5 min.
Debug Mode 	Operating mode which supports firmware programmer when localizing errors.	Off

Table 8. Parameters of the menu Setup > Machine param.

4-1-3 Printing Parameters

1. Press the **menu** button.
2. Select **Setup > Print param.**

Parameter	Meaning	Default
Heat Level 	Heating value for compensating for differing thermal behavior of print-heads. Changing this value is then necessary if printing intensity has changed after replacing printhead. To adapt printing intensity when using different media, print speeds or printing contents, you should change the heat level in the software. The settings from the Print param. menu and the software are added together. The heat level setting also affects the test printouts.	0
Print Speed 	Basic print speed setting. You can re-specify the print speed for each print job via software. The basic setting is not changed by this. The print speed setting also affects the test printouts.	100 mm/s
Transfer Print 	On for thermal transfer printing: Sensor for monitoring the transfer ribbon is activated. Off for thermal direct printing: Sensor for monitoring the transfer ribbon is not activated. You can overwrite the setting for each print job via software.	On
Warn Level Ribbon 	Warning via the Ethernet interface by way of an SNMP message or e-mail sent when the remaining diameter of the ribbon supply roll undershoots the set value (32–74 mm).	Off
Label Sensor 	Method for detecting the starting end of the label. Gap Sensor: Detection using changes in the transparency between the label and label gap. Bottom-Reflect: Detection using reflex marks on the bottom of the medium. Continuous media: Synchronization of the paper flow when using endless media in cutting mode. More detailed information is found in the documentation of the cutter.	GapSensor
Tear-off Mode 	Positioning the label medium for tearing off at the tear-off plate. On: Additional advancement of the label medium which positions the label gap after the last printed label at the dispense plate. Off: Label advance stops once the last label has fully passed the print line.	Off

Parameter	Meaning	Default
Backfeed 	Method for backfeeding the label medium. Backfeeding is necessary in the cutting and peel-off modes since a label is pushed out passed the front edge of the next label above the print line when peeling off/cutting. always: Backfeeding occurs independently of label contents. smart: Backfeeding only occurs when the next label is not yet fully prepared when peeling off/cutting the current label. Otherwise, the second label is pushed on and completed after removal of the first label without backfeeding.	smart
Error-Reprint 	On: With a correctable error and corresponding troubleshooting, the label being printed when the error occurs is repeated. Off: Print job is continued with the next label.	On
Pause reprint 	Printing of another label with the information of the previous print job by pressing the pause button. This function can be executed until the print buffer is cleared with the cancel button.	Off
Protocol error 	On: Printer switches to Error mode when unknown or faulty data is received. Off: When working with older computer operating systems, it is possible that the print spooler of the operating system will reply to the printer with normal status messages of the printer (e.g. end of paper) in the form of ASCII text. The printer cannot interpret this data and outputs a large number of protocol errors. In this case, it is advantageous if you set the Protocol error parameter to Off . Caution: If the Protocol error parameter is set to Off , protocol errors which can be traced back to faulty programming are also ignored. There is a risk of data loss.  Access only when service key is inserted!	On
Barcode error 	On: With faulty barcode contents or size specifications, printing is interrupted. Off: Printing is not interrupted if an error occurs. If barcode contents are faulty, the printer attempts to replace the incorrect data with valid characters (e.g. zeros). If barcode size specifications are faulty, a gray area is printed instead of the barcode.	On
Width ASCII dump 	Width of printing area in the "Monitor mode" test function (see 5-6, on page 40). With the Automatic setting, the printout of the control sequences arriving at the printer occurs over the maximum printing width. You can reduce the printing area width down to 50 mm.	Automatic

Table 9. Parameters of the menu Setup > Print param.

4-1-4 Interfaces

1. Press the **menu** button.
2. Select **Setup > Interfaces**.

Parameter	Meaning	Default
Default Card Slot 	Definition of the primary card slot. Select one of the card slots on the back of the printer with CompactFlash or PC-Card or the card slot in the external operating panel with Ext. CompactFlash .	Compact-Flash
Character Set 65 	Selection of the character set table for adaptation to the computer system used. Switching the character set via software is not possible. You can access characters not available in the selected character set, however, using the Unicode table.	Windows 1252
RS232 	Interface parameters Baud rate and Handshake for data transfer via the serial RS-232 interface.	57600 RTS/CTS
RS-422/485 	Configuration of the optional serial RS-422 or RS-485 interface. See documentation of the serial interface.  If interface is not installed, access only granted with service key inserted!	
IEEE 1284 	Configuration of the optional parallel interface. See the documentation of the parallel interface.  If interface is not installed, access only granted with service key inserted!	
Ethernet 	Configuration parameters of the Ethernet interface card. You can access additional configuration parameters for the Ethernet interface card via the printer website (see 4-2-2-2, on page 28).	
> DHCP 	Method of issuing IP address On : Dynamic issuing of IP address by the DHCP server Off : Direct issuing of the IP address by the operator	On
> IP 	IP address of the printer. Only valid with DHCP = Off .	
> Mask 	Subnet mask (classification and address range) of the local network. Only valid with DHCP = Off .	

Parameter	Meaning	Default
> Gateway 	Connection address between the local network and other networks. The IP address of the computer (router) on the network through which the connection can be established is used for this. The address of the router can also be issued via DHCP.	Off
> Network Error 	Printer switches to Error mode when problems with the network connection occur.	Off
Keyboard 	Setting of the keyboard layout when using an external keyboard.  If keyboard is not connected, access only granted with service key inserted!	
> Layout 	Country setting of the keyboard layout. With the Automatic setting, the setting from the menu Local settings > Country is used.  If keyboard is not connected, access only granted with service key inserted!	Automatic
> NumLock 	Activation or deactivation of the numerical keypad on the keyboard.  If keyboard is not connected, access only granted with service key inserted!	On

Table 10. Parameters of the menu Setup > Interfaces

4-1-5 Status Line

Select the parameters to be displayed in *Ready* mode.

1. Press the **menu** button.
2. Select **Setup > Status line** menu.

Parameter	Meaning	Default
Clock 	Displays the current time.	On
Date Sheet 	Displays the current calendar day.	On
Ribbon Supply 	Displays current ribbon supply in the form of a horizontal bar.	Off
Wi-Fi Signal Strength 	Displays the current strength of the electromagnetic field with a WLAN connection.	Off
Ethernet Link Status 	Displays the Ethernet status.	Off
Temperature 	Displays the current printhead temperature.	Off
PPP Funds 	Displays current "Pay Per Print" funds in the form of a horizontal bar. "Pay Per Print" is a method of paying for printer leasing by buying consumables.	Off
Used Memory 	Displays the current memory used in the form of a vertical bar.	Off
Input Buffer 	Displays the current input buffer used in the form of a vertical bar.	Off
Card Access 	Icon displayed while an installed memory card is being accessed.	On
Data Transfer 	Displays the current data transfer in the form of a falling drop.	On

Table 11. Parameters of the menu Setup > Status line

4-1-6 Security

4-1-6-1 Activating a PIN

By activating a PIN, you can protect the *Setup* menu, certain memory card functions and the firmware update from unauthorized access. Protected menu items are then marked with the  symbol and are only accessible after the PIN is entered.

1. Press the **menu** button.
2. Select **Setup > Security > Security** menu.
3. Select the value **On** with the  and  buttons
4. Accept the setting with the  button.

4-1-6-2 Defining a PIN

1. Press the **menu** button.
2. Select *Setup > Security > PIN* menu.
3. Select the digit of the PIN to be changed with the  and  buttons.
4. Assign the selected digit a number with the  and  buttons.
5. Repeat these two steps for the remaining digits of the PIN.
6. Accept the setting with the  button.

4-2 Configuration via the Printer Website

The parameters accessible via the operating panel can also be set via the website contained in the firmware of the printer. In addition, other parameters for the Ethernet interface are accessible there. You can access the printer website with a Java-capable browser (e.g. Microsoft Internet Explorer, Netscape Navigator) via the Ethernet interface. Use of the Java applets requires at least version 1.4.2 of Java.

4-2-1 Calling up the Printer Website

i It is absolutely necessary to define a PIN to make settings via the printer website. You are requested to enter this PIN whenever settings are changed via the website. The initial setting of the PIN can be made via the operating panel of the printer (see 4-1-6, on page 24) or via the printer website (see 4-2-2-2, on page 28).

1. Start the browser.
2. Call up printer website by entering the IP address via HTTP (e.g., `http://192.168.100.208`). The "Status" tab is open on the home screen.
3. Check to see if the status "Ready" is displayed.

4-2-2 Description of the Printer Website

The printer website contains the following tabs:

- Status: general status description. see 4-2-2-2, on page 28.
- Setup: configuration parameter settings (see 4-2-2-2, on page 28).
- System messages: automatic sending of messages via e-mail (see 4-2-2-3, on page 30).
- Printer status line: printer status line layout (see 4-2-2-4, on page 31).
- Fonts: overview of the available fonts (see 4-2-2-5, on page 32).
- Devices: list of the hardware and optional components (see 4-2-2-6, on page 33).
- Help: online help (see 4-2-2-7, on page 33).

4-2-2-1 Status Tab

The screenshot displays the 'Status' tab for a BP-PR 200 PLUS printer. The top navigation bar includes 'Status', 'Setup', 'System messages', 'Printer status line', 'Fonts', 'Devices', and 'Help'. The main content area shows the printer model 'BP-PR 200 PLUS ()', firmware version 'V3.04 (Jul 27 2006)', and bootloader version 'V1.14 (Jul 24 2006)'. Key status indicators include: Temperature 83 °F (CPU 112 °F), Heat voltage 23.7 V, Operative time 457h 30min, Number of labels 615, Thermal transfer 15.914m, and Thermal direct 15.492m. A 'Printer info' section shows an 'Error' state. Below this is a table of recent events:

Date/Time	Description
08-09-2006/02:43:26 pm	Out of paper
08-09-2006/02:43:04 pm	Head open
08-09-2006/02:41:09 pm	+Memory card PC Card 0 kByte
08-09-2006/02:41:09 pm	+Memory card CompactFlash 31168 kByte
08-09-2006/02:41:06 pm	Ready

At the bottom of the window are buttons for 'Display', 'Reset', 'Print', and 'Update'.

Figure 8. "Status" Tab on the Printer Website

The following information is contained in the top section of the "Status" tab:

- Printer type
- Firmware version
- Bootloader version
- Printhead temperature and temperature of CPU
- Heat voltage for the printhead. The heat voltage is only active during printing. Otherwise, 0.0 V is displayed.
- Operative time of the printer
- Number of labels printed since commissioning
- Previously printed paper length with thermal transfer printing
- Previously printed paper length with thermal direct printing
- Printer status: "Ready", "Printing label", "Settings" or "Error"

i Information is not updated automatically while the "Status" tab is open. Updating occurs when the tab is changed or by clicking the **Update** button.

A list of the events which have occurred since the printer was switched on are found in the bottom section of the tab. No more than the last eight events are displayed.

The "Ready" event provides information on when the printer was switched on.

The buttons on the bottom line of the "Status" tab have the following functions:

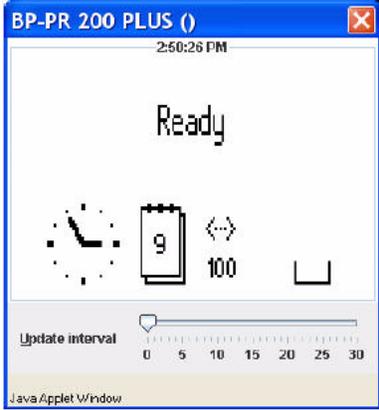
Button	Function
Display	<p>Opens a window which shows the current printer display. You can set the update interval on the scale below the display. The display is not updated automatically with the "0" setting.</p> 
Reset	Sends a soft reset signal to the printer.
Print	Opens the window for the settings of a local printer or network printer to be used to print the contents of the "Status" tab.
Update	Updates the display on the "Status" tab.

Table 12. Buttons on the "Status" tab

4-2-2-2 Setup Tab

On the "Setup" tab, you can set all the configuration parameters which are also accessible via the operating panel in the **set up** menu. In addition, other parameters for the Ethernet interface can be set (see below).

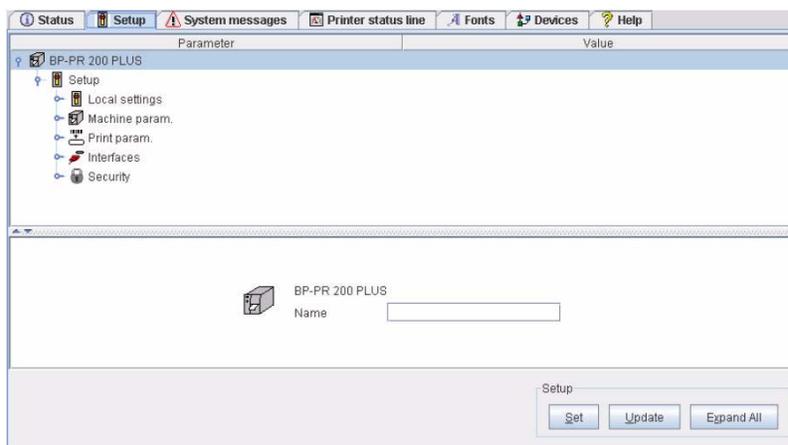


Figure 9. "Setup" tab on the printer website.

The menus and parameters are arranged in a tree structure in the top section of the tab. The tree structure can be expanded in different ways:

- ⇒ Click circular symbol in front of the menu symbol once. The corresponding menu is expanded.
- ⇒ Double-click menu symbol or menu name. The corresponding menu is expanded
- ⇒ Click the **Expand All** button. The tree structure is fully expanded.

To change a parameter:

1. Locate parameter in the tree structure.
2. Click parameter name or the symbol next to it.
3. Enter value of the parameter in the input field in the bottom section of the tab.
4. Click **Set**.
5. Enter PIN and click **OK**.

The printer can be given a name on the top line of the tree structure. This name does not have a functional meaning. Its sole purpose is to allow the operator to more easily differentiate between the printers on a network.

i Information is not updated automatically while the "Setup" tab is open. Updating occurs when the tab is changed or by clicking the **Update** button.

The following parameters for the Ethernet interface can only be accessed via the printer website:

Parameter	Meaning	Default
SMTP Server	E-mails can be sent to selected addresses when certain status and error messages are generated. To activate: ⇒ Set parameter to "On". ⇒ Enter IP address of the SMTP server. ⇒ Enter a valid e-mail address for the printer in the "From address" field. More detailed information on sending e-mails is found in "System messages tab" on Page 33.	Off
Raw-IP Port	Service for printing on the network (see 2-2-1, on page 12). ⇒ Select a predefined port address.	9100
LPD	Activation of the network printing service LPD (see 2-2-1, on page 12): ⇒ Set parameter to "On". Enter "lp" as the queue name.	Off
SNMP	Data exchange between printer and management station via SNMP (Simple Network Management Protocol). To activate: ⇒ Set parameter to "On". ⇒ Enter IP address of the management station(s) (receiver 1 or receiver 2). ⇒ Assign the "Community" parameter the value "public".	Off
Time Server	Synchronization of the date and time of the printer. To activate: ⇒ Set parameter to "On". ⇒ Enter IP address of the time server. Synchronization occurs hourly. The accepted time is not automatically saved in the printer, however. To save the accepted time: ⇒ Call up the parameter time and save the displayed setting with OK.	Off

Table 13. Additional parameters for Ethernet interface

4-2-2-3 System Messages Tab

Status and error messages can be sent automatically to the SNMP manager or via e-mail to the selected addresses immediately after they occur via the Ethernet interface. Select the messages to be sent and destination addresses on the "System messages" tab.

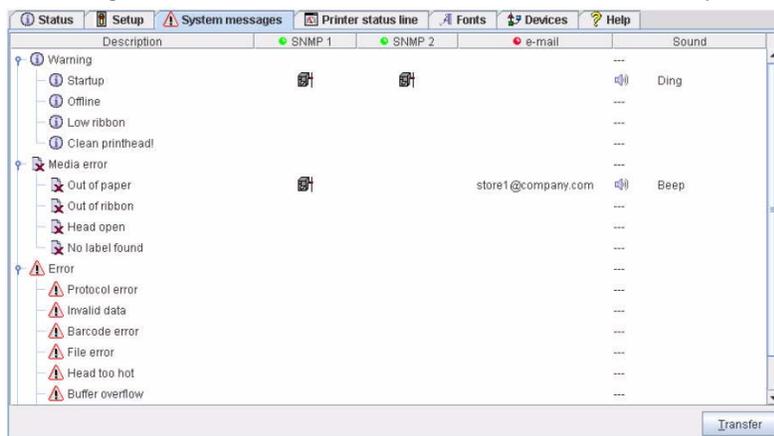


Figure 10. "System messages" tab on the printer website

Column	Meaning
Description	Status and error messages that can be sent. ⇒ To expand tree structure, click circular symbol once or double-click description. An entry for a higher-order description (e.g. note) is automatically accepted for all subordinate descriptions (e.g. "Start", "Not ready", "Ribbon running out").
SNMP 1 SNMP 2	Management stations on local network which communicate with the printer via SNMP. To make use of SNMP functionality, the SNMP agent must be activated (see 2-2, on page 12). ⇒ Select management station by clicking the corresponding cell. The selection is indicated via a symbol. Undo the selection by clicking it again.
E-mail	Valid e-mail address for the SMTP server to which the message is to be sent. ⇒ Click cell and enter e-mail address or select from pull-down menu.
Sound	Audible signal which indicates receipt of the message. ⇒ Click cell and select signal type in pull-down menu.

Table 14. Parameters on "System messages" tab

i The settings are not accepted until the **Transfer** button is clicked. If you switch to another tab beforehand, the settings are lost.

4-2-2-4 Printer Status Line Tab

On the "Printer status line" tab, you can select the status parameters which are to be displayed on the printer status line.

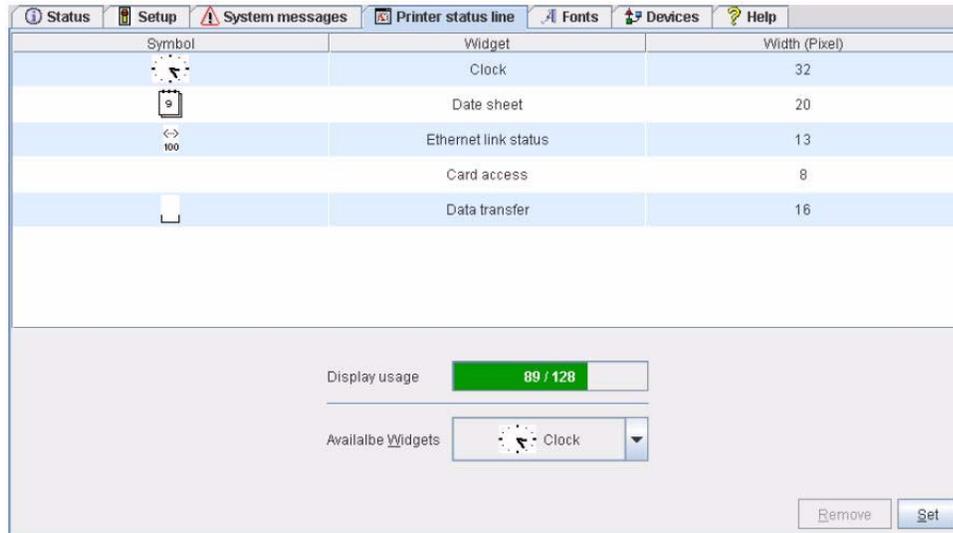


Figure 11. "Printer status line" tab on the printer website

Adding a status parameter:

1. Select widget in pull-down menu.
2. Click **Set**.

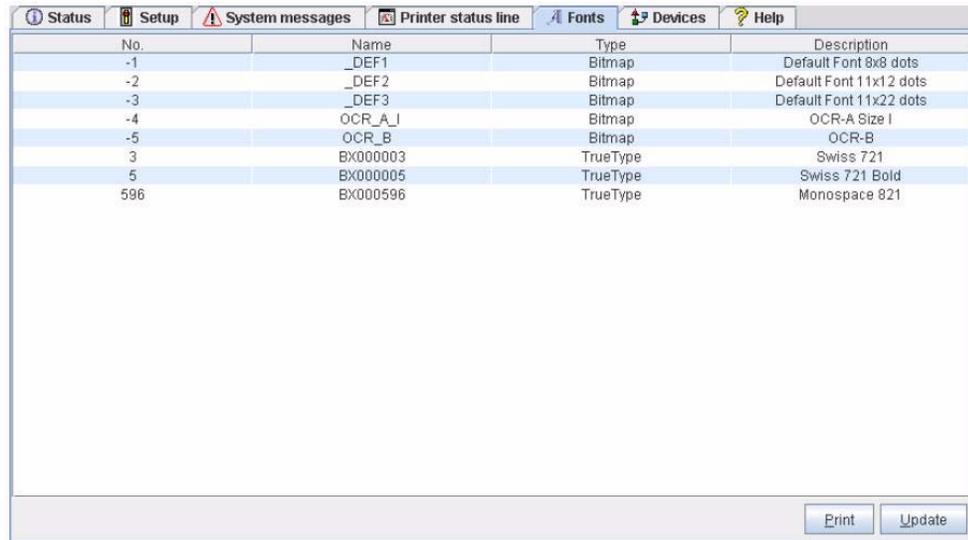
The symbol, the parameter designation and the width of the symbol in the display (in pixels) are displayed in the top section of the tab. The entire width of all symbols in the display (e.g. 92 pixels) and the maximum width of the display (e.g. 128 pixels) are displayed in the "Display usage" field.

Removing a status parameter:

1. Select parameter in the list.
2. Click **Remove**.

4-2-2-5 Fonts Tab

The most important parameters of the fonts available in the printer are listed on the "Fonts" tab. The table contains both the original fonts in the printer and other fonts loaded into the printer.



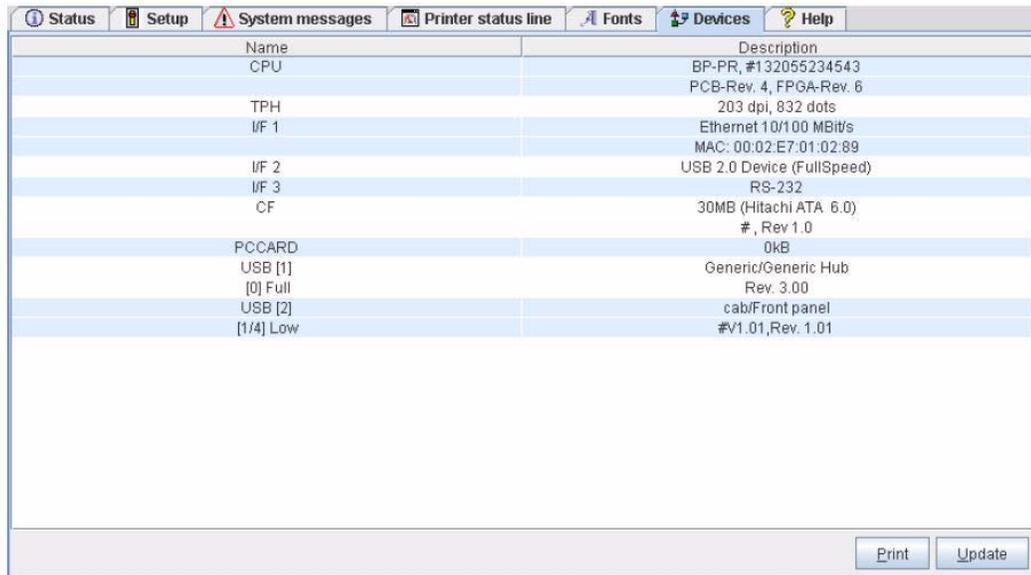
No.	Name	Type	Description
-1	_DEF1	Bitmap	Default Font 8x8 dots
-2	_DEF2	Bitmap	Default Font 11x12 dots
-3	_DEF3	Bitmap	Default Font 11x22 dots
-4	OCR_A_I	Bitmap	OCR-A Size I
-5	OCR_B	Bitmap	OCR-B
3	BX000003	TrueType	Swiss 721
5	BX000005	TrueType	Swiss 721 Bold
596	BX000596	TrueType	Monospace 821

Figure 12. "Fonts" tab on the printer website

The parameters correspond to those in the **Font list** menu and are described in Table 17 on page 37.

4-2-2-6 Devices Tab

The "Devices" tab provides an overview of the most important hardware components installed in the printer and the optional devices connected.



Name	Description
CPU	BP-PR, #132055234543
TPH	PCB-Rev. 4, FPGA-Rev. 6
I/F 1	203 dpi, 832 dots
I/F 2	Ethernet 10/100 MBit/s
I/F 3	MAC: 00:02:E7:01:02:89
CF	USB 2.0 Device (FullSpeed)
PCCARD	RS-232
USB [1]	30MB (Hitachi ATA 6.0)
[0] Full	#, Rev 1.0
USB [2]	0kB
[1/4] Low	Generic/Generic Hub
	Rev. 3.00
	cab/Front panel
	#V1.01, Rev. 1.01

Print Update

Figure 13. "Devices" tab on the printer website

The contents of the display correspond with those of the **Device list** and are described in Table 18 on page 39.

4-2-2-7 Help Tab

When the "Help" tab is selected, an internet connection to the support page of the cab website is opened.

5 Test Functions

5-1 Overview

The printer is equipped with different test functions providing information on:

- the most important configuration parameters
- the fonts available in the printer
- important hardware components and connected peripheral devices
- the print image quality and state of the thermal printhead
- the function of label detection in conjunction with the optical properties of the label medium
- the label data sent from the computer or read out from the memory card.

The test functions are found in the *Test* menu:

1. Press the **menu** button.
2. Select **Test** menu.
3. Switch to the test function level with the **^** button.
4. Select the desired test function with the **⇧** and **⇩** buttons.
5. Start the selected test function with the **↵** button.

5-2 Short Status

The *Short status* menu provides an overview of important status information in the printer display.

1. Press the **menu** button.
2. Select *Short status* menu.
3. Scroll through the individual lines with the **▲** and **▼** buttons.
You can exit the *Short status* menu with the **↵** button.

The following configuration parameters are displayed in the *Short status* menu:

Line	Meaning	Example
1	Printer type	BP-PR 200 PLUS
2	Version number of the printer operating system (firmware)	Firmware V3.04
3	Creation date of firmware	(Jul 27 2006)
4	Version number of the system loader (bootloader)	Bootloader V1.14
5	Creation date of the bootloader	(Jul 24 2006)
6	Revision of the CPU PCB	PCB Rev. 04
7	Revision of the FPGA (Field Programmable Gate Array)	FPGA Rev. 2
8	Resolution of the installed thermal printhead	TPH 203dpi,832dots
9	Previously printed paper lengths with thermal transfer printing	Transfer 181.44 m
10	Previously printed paper length with thermal direct printing	Thermal 13.17 m
11	IP address of the printer when connected to a network	192.168.9.13

Table 15. Display in *Short status* menu

5-3 Status Print

The *Status print* function prints a test image containing information on the configuration and status of the printer. The printout occurs using the heat level and print speed specified in the *Setup > Print param.* menu.

i The printout occurs without taking the label gaps into consideration. This is why endless media are most suitable for this purpose.

1. Insert printable medium (labels, endless paper) which extends across the entire printing width. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
2. Press the **menu** button.
3. Select **Test > Status print** menu.
4. Start printout with the **↵** button. You can cancel the printout with the **cancel** button.

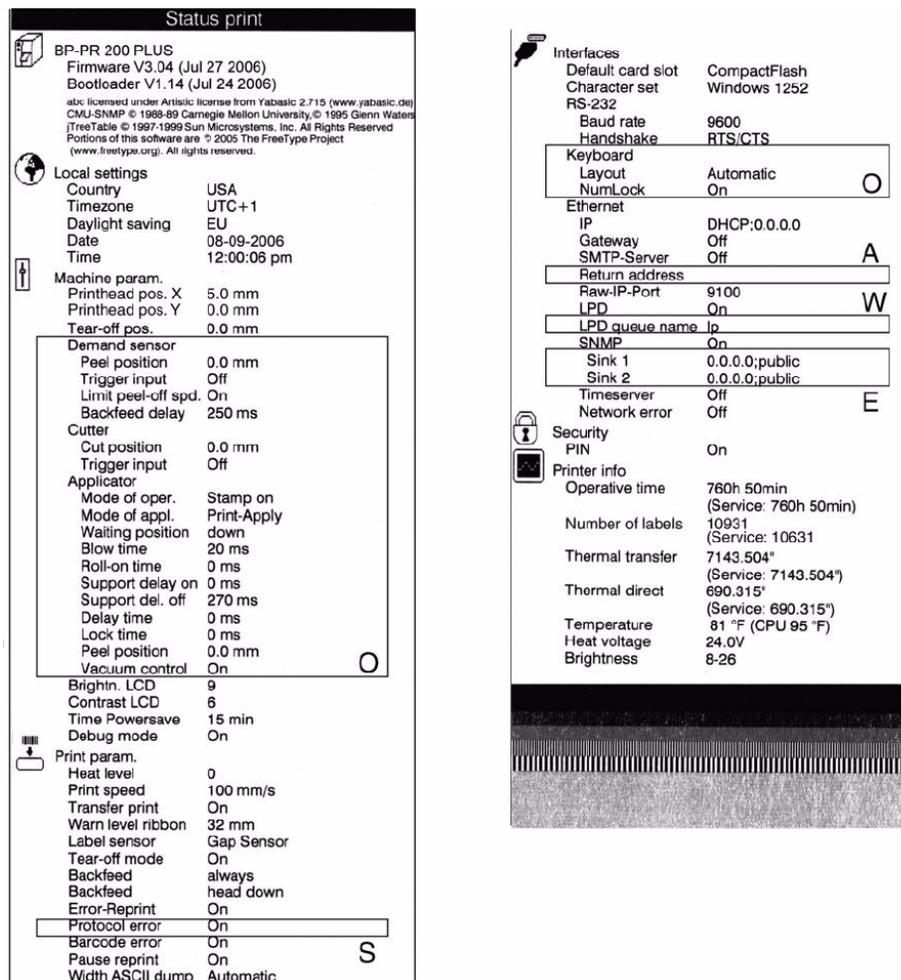


Figure 14. Status print

- A** From address is displayed if the SMTP server is "On" or the service key is inserted
- E** Recipients are displayed if SNMP is "On" or the service key is inserted
- O** Optional assemblies which are displayed with the service key inserted even if they are not installed
- S** Service data only displayed when the service key is inserted
- W** Queue name is displayed when LPD is "On" or the service key is inserted

The *Status print* contains the following information:

Symbol	Information
	<ul style="list-style-type: none"> • Device type • Version and creation date of the firmware • Version and creation date of the system loader (bootloader)
	Current values of selected local settings (see 4-1-1, on page 17).
	Current values of selected device settings (see 4-1-2, on page 18).
	Current values of selected print parameters (see 4-1-3, on page 19).
	Current values of selected interface parameters (see 4-1-4, on page 21).
	Status of PIN activation (see 4-1-6, on page 24).
	<ul style="list-style-type: none"> • Operative time • Number of labels printed • Printed length with thermal transfer printing and thermal direct printing • Current measured values of the printhead temperature and heat voltage • Information on the working points of the label sensor
Line pattern	The <i>Status print</i> presents lines differing in thickness at various distances at the end. They are used to evaluate the print quality.

Table 16. Information in Status print

5-4 Font List

The *Font list* function prints the most important parameters of the fonts available in the printer in tabular form. The table contains both the original fonts in the printer and other fonts loaded into the printer. The printout occurs using the heat level and print speed specified in the *Setup > Print param.* menu.

i The printout occurs without taking the label gaps into consideration. This is why endless media are most suitable for this purpose.

1. Insert printable medium (labels, endless paper) which extends across the entire printing width.
2. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
3. Press the **menu** button.
4. Select **Test > Font list** menu.
5. Start printout with the **button**.

You can cancel the printout with the **cancel** button.

Font list			
BP-PR 200 PLUS - 08-09-2006 - 07:16:02 Firmware V3.04 (Jul 27 2006) - #132055234528			
No.	Name	Type	Description
-1	_DEF1	Bitmap	Default Font 12x12 dots
-2	_DEF2	Bitmap	Default Font 16x16 dots
-3	_DEF3	Bitmap	Default Font 32x64 dots
-4	OCR_A_I	Bitmap	OCR-A Size I
-5	OCR_B	Bitmap	OCR-B
3	BX000003	TrueType	Swiss 721
5	BX000005	TrueType	Swiss 721 Bold
596	BX000596	TrueType	Monospace 821
1000	GHEI21M	TrueType	A R H e i t i M e d i u

Figure 15. Font list

The parameters have the following meaning:

Column	Meaning
No.	ID number of the font required for programming (command T).
Name	Name with which the font is saved internally.
Type	Type of font generation. It provides information on the variability of the font and is important when programming (command T).
Description	Explanations of the font: size, font family. The printout occurs in the appropriate font.

Table 17. Parameters of the Font list

5-5 Device List

The **Device list** function prints out the most important information on hardware components of the printer and connected devices. The printout occurs using the heat level and print speed specified in the **Setup > Print param.** menu.

i The printout occurs without taking the label gaps into consideration. This is why endless media are most suitable for this purpose.

1. Insert printable medium (labels, endless paper) which extends across the entire printing width.
2. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
3. Press the **menu** button.
4. Select **Test > Device list** menu.
5. Start printout with the **↵** button.

You can cancel the printout with the **cancel** button.

Device list	
Mach4/300 - 10/09/2007 -15:14:17 Firmware V3.11 (Aug 9 2007) - #111070553751	
Name	Description
CPU	Thor, #111070553751 PCB-Rev. 7, CPU-Rev. 4
TPH	300 dpi, 1248 dots
I/F1	Ethernet 10/100 MBit/s MAC: 00:02:E7:02:28:F4
I/F2	USB 2.0 Device
I/F3	RS-232
IFFS	8MB
USB [1] [0] Full	Generic/Generic Hub Rev. 3.00 Mfr: 03EB,Class: 09/00,Protocol: 00, Phase: 20/0
USB [2] [1/1] Low	cab/Service-Key #7-5037793,Rev. 1.05 Mfr: 0985,Class: FF/00,Protocol: FF, Phase: 20/4
USB [3] [1/3] Full	cab/Frontpanel Rev. 2.05 Mfr: 0985,Class: FF/1C,Protocol: 00, Phase: 20/1
<small>abc licensed under Artistic license from Yabasic 2.715 (www.yabasic.de) CMU-SNMP © 1988-89 Carnegie Mellon University, © 1995 Glenn Waters jTreeTable © 1997-1999 Sun Microsystems, Inc. All Rights Reserved Portions of this software are © 2005 The FreeType Project (www.freetype.org). All rights reserved. mDNSResponder © 2002-2006 Apple Computer Inc. All Rights Reserved Licensed under the Apache License, Version 2.0</small>	

Figure 16. Device list

Name	Information
CPU	<ul style="list-style-type: none"> • Type and serial number of the CPU PCB • Revision of CPU PCB and FPGA
TPH	Resolution and heating point number of the installed thermal printhead.
I/F [x]	Type of interfaces installed x : Number of interface
USB [a] [b/c] Speed	<p>Type and revision of installed USB devices</p> <p>a: number of USB device</p> <p>b: number of USB device to which device a is connected</p> <p>c: number of interface of device b to which device a is connected</p> <p>Speed: data transfer speed (low, full, high)</p> <p> The following properties are only displayed when the service key is inserted:</p> <p>Mfr.: Manufacturer ID. This identifies the manufacturer of the USB device</p> <p>Class: Code for the USB device class</p> <p>Protocol: Code for the type of communication with the USB device</p> <p>Phase: Internal value for troubleshooting</p>

Table 18. Parameters of the Device list

5-6 ASCII Dump Mode

ASCII Dump Mode offers the option of checking incoming control sequences at the interface when working with direct programming. The incoming commands at the printer are printed out as text. In addition, a corresponding error message is printed out immediately after an error occurs.

The printout occurs using the heat level and print speed specified in the **Setup > Print param.** menu and is started after four lines have been received.

i

- The printout occurs without taking the label gaps into consideration. This is why endless media are most suitable for this purpose.
- If you only have media (labels, endless paper) which do not cover the entire printing width, you can reduce the width of the printout continuously down to 50 mm with the **Width ASCII dump** parameter (see 4-1-3, on page 193).

i

If you have questions about programming, keep a printout of your label file which was created in **ASCII Dump Mode** handy. The printout can be transmitted clearly via fax.

1. Load printable medium (labels, endless paper).
2. If the printout is to occur using thermal transfer printing, insert transfer ribbon.
3. If the printable medium and/or the transfer ribbon does not cover the entire printing width, reduce the width of the printout accordingly with the **Width ASCII dump** parameter see 4-1-3, on page 19).
4. Press the **menu** button.
5. Select **Test > ASCII Dump Mode** menu.
6. Switch to Monitor mode with the **←** button.
7. Send print jobs.
8. Call up the last few lines of a label description with the **feed** button.

Press the **cancel** button if you would like to cancel the printout or switch to the **Ready** mode.

The control characters (ASCII code 00 to 31) are presented in the following form:

Code DEC | HEX	Print- out	Code DEC | HEX	Print- out	Code DEC | HEX	Print- out	Code DEC | HEX	Print- out
00 00	N _L	08 08	B _S	16 10	D _E	24 18	C _A
01 01	S _Q	09 09	H _T	17 11	D _C ₁	25 19	E _M
02 02	S _T	10 0A	L _F	18 12	D _C ₂	26 1A	S _B
03 03	E _T	11 0B	V _T	19 13	D _C ₃	27 1B	E _S
04 04	E _D	12 0C	F _F	20 14	D _C ₄	28 1C	F _S
05 05	E _N	13 0D	C _R	21 15	N _A	29 1D	G _S
06 06	A _C	14 0E	S _O	22 16	S _N	30 1E	R _S
07 07	B _E	15 0F	S _I	23 17	E _T	31 1F	U _S

Figure 17. Presentation of the control characters in ASCII dump mode

5-6-0-1 Example:

In the following two figures, the printout in Monitor mode is contrasted with the "normal" printout of a label.

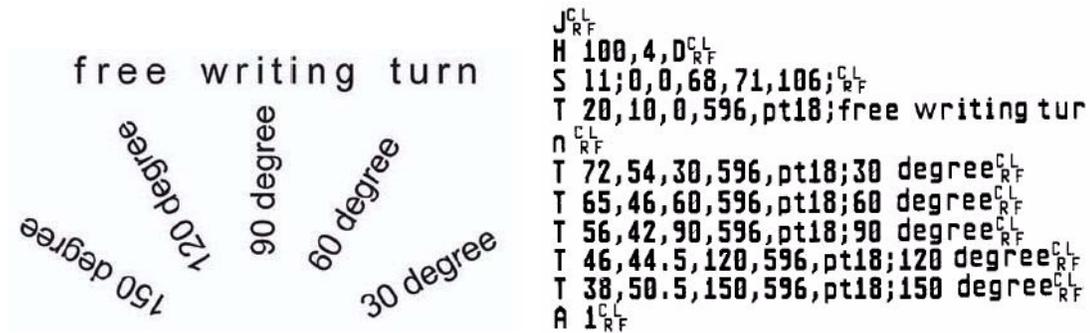


Figure 18. Printout of the example label in ASCII dump mode

5-7 Test Grid

The **Test grid** function prints out the geometric pattern on a background grid. This allows you to assess the evenness of the print quality.

The printout occurs using the heat level and print speed specified in the **Setup > Print param.** menu.

i The printout occurs without taking the label gaps into consideration. This is why endless media are most suitable for this purpose.

1. Insert printable medium (labels, endless paper) which extends across the entire printing width.
2. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
3. Press the **menu** button.
4. Select **Test > Test grid** menu.
5. Start printout with the **←** button. The geometric pattern is printed every 5 seconds once the **Test grid** function is started. You can adjust the printer during the pauses between the printouts.

You can end the printout of the test grid with the **cancel** button.

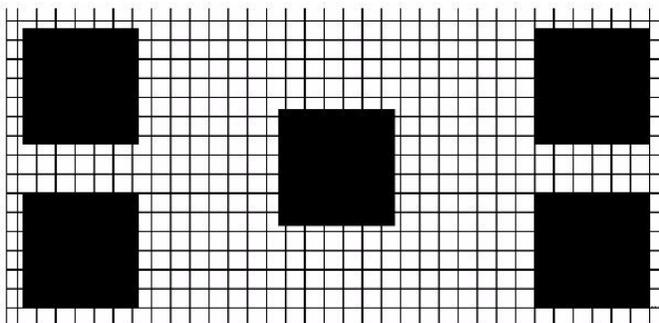


Figure 19. Example test grid

5-8 Label Profile

The **Label profile** function carries out a longer label advance. It saves the values measured by the label sensor here and then prints them out in two diagrams. The printout is used to check label detection in conjunction with the optical properties of the label medium.

The printout occurs using the heat level and print speed specified in the **Setup > Print param.** menu.

i The printout of the diagram occurs without taking the label gaps into consideration. This is why endless media are most suitable for the printout.

1. Select the label sensor to be tested in the menu **Setup > Print param.** (see 4-1-3, on page 19).
2. Load the label medium to be tested into the printer.
3. Press the **menu** button.
4. Select **Test > Label profile** menu.
5. Start the function with the \leftarrow button. The printer performs a longer label advance. The label sensor measures the transparency/reflection capacity of the label material here. The message **Test print OK** appears in the display once the advance is complete.
6. Insert printable medium (labels, endless paper) which extends across the entire printing width.
7. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
8. Start the diagram printout with the \leftarrow button.

The following figure shows an example label profile. The top diagram shows the gradient determined for label detection. The rise (first derivative) of the gradient is represented in the bottom diagram. The starting end of the label is located at the point where the rise of the gradient exhibits a minimum (see vertical dotted line).

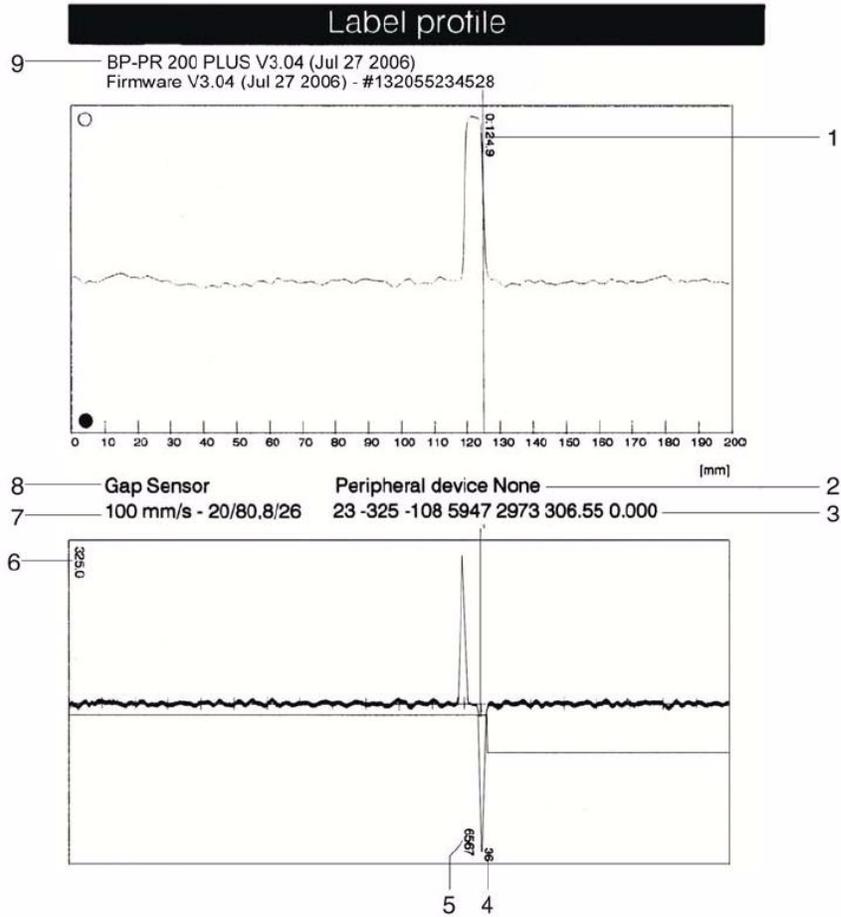


Figure 20. Label profile

- 1 Coordinate in the direction of paper flow at which the label start was detected
- 2 Type of peripheral device connected
- 3 Information for the firmware developer
- 4 Width of the negative derivative in motor increments
- 5 Stroke between start and end of the negative derivative
- 6 Scale factor for the derivative diagram
- 7 Service information for adjusting the label sensor
- 8 Method of label detection (transmitted light/reflex bottom)
- 9 Device name and current firmware version

5-9 Event Log

 Access only when service key is inserted!

The printer saves the following events in the Event log:

- Hardware fault
- Printhead replacement with a change in resolution
- Adjustment of the label sensor
- Firmware updates
- Resetting of the service counters

The printout of the Event log occurs using the heat level and print speed specified in the menu *Setup > Print param.*

i The printout of the diagram occurs without taking the label gaps into consideration. This is why endless media are most suitable for the printout.

1. Insert service key into a USB master interface.
2. Insert printable medium (labels, endless paper) which extends across the entire printing width.
3. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
4. Press the **menu** button.
5. Select **Test > Event log** menu.
6. Start printout with the **↵** button.



Event log	
BP-PR 200 PLUS - 08-09-2006 - 11:48:02 Firmware V3.04 (Jul 27, 2006) - #132055234543 Bootloader V1.14 (Jul 24, 2006)	
Date/Time	Description
08-03-2006/10:55:17 am	TPH -> 8dot/mm, 632 dots
08-03-2006/10:56:06 am	Firmware upd. (V3.04 Jul 27, 2006)
08-03-2006/10:56:16 am	Firmware upd. (V3.04 Jul 27, 2006)
08-03-2006/10:56:01 am	Adjust gap sensor: 8/27
08-07-2006/09:10:27 am	Clear service counters
08-07-2006/09:59:07 am	Neue Firmware (V3.04 Jul 27, 2006)
08-07-2006/10:01:07 am	Adjust gap sensor: 8/26
08-07-2006/10:01:38 am	Adjust gap sensor: 8/25

Figure 21. Event log

Location	Description
First line	Version number and creation date of the firmware
Second line	Version number and creation date of the bootloader
Left column	Date and time the event occurred
Right column	Brief description of the event

Table 19. Information in the Event log

5-10 Print IFFS Contents

 Access only when service key is inserted!

The IFFS (Internal Flash File System) is found on a Flash EPROM in the printer. The memory is used for long-term storage of programs and is conceived for "read-only" access. You can print an overview of the IFFS contents with the **Print directory** function.

i The *Print directory* function is not displayed if data has not been saved in IFFS.

1. Insert service key into a USB master interface.
2. Press the **menu** button.
3. Select **Test > Print directory** menu.
4. Start printout with the ←button.

You can cancel the printout of the IFFS contents with the **cancel** button.
The following information is available in the printout:

- First line: title
- There is a line for each file in the IFFS with information on: file name, file extension, file size in bytes, time stamp for the last file modification.
- Last line: available memory in the IFFS

6 Service Functions

6-1 Performing Firmware Update

The firmware of the printer is saved in a Flash EPROM. You can update the firmware using the following functions:

- **Firmware upd.:** Copy a firmware file from a computer connected to one of the interfaces of a printer (see 6-1-1, on page 47).
- **Firmw. fr. card:** Copy a firmware file from a memory card (see 6-1-2, on page 48).
- FTP firmware update via printer management (see 7-3, on page 54).

The firmware file can be obtained on a diskette or from the internet.

6-1-1 Copying New Firmware via Interface

1. Press the **menu** button.
2. Select **Service > Firmware upd.** menu.
3. Press the **↵** button.
The *Firmware-Upd* message appears in the display.
4. Press the **↵** button.
5. If the function *Firmware upd.* is protected via a PIN, use the buttons **▲**, **▼**, **▶** and **◀** to enter the code number and confirm with the **↵** button.
6. Open the DOS input window on the PC.
7. Configure the serial interface of the PC with the mode command. Enter the command **mode com1: baud=115200 parity=n data=8 stop=1**, for example
8. Send the firmware file (e.g. 303_6518.x2) to the printer. Enter the command **copy /b 304_6727.x2 com1:** for example.
A progress indicator is displayed while the firmware is being copied. **OK** appears in the display once copying is successfully completed.
9. Press the **↵** button.

6-1-2 Copying New Firmware from Memory Card

1. Format CompactFlash memory card in printer (see 8-2, on page 567). The directories "fonts", "images", "labels" and "misc" are created on the memory card here.
2. Copy the firmware file to the "misc" directory in a CompactFlash drive.
3. Insert the prepared memory card into the printer.
4. Press the **menu** button.
5. Select **Service > Firmw. fr. card** menu.
6. Press the \leftarrow button.
7. If the function **Firmw. fr. card** is protected via a PIN, use the buttons \blacktriangle , \blacktriangledown , \blacktriangleright and \blacktriangleleft to enter the code number and confirm with the \leftarrow button. The names of the firmware files found on the memory card are shown in the display.
8. If several firmware files are found on the memory card, select the desired file with the \blacktriangle and \blacktriangledown buttons.
9. Press the \leftarrow button. The selected firmware file is copied. A progress indicator is displayed while the firmware is being copied. **OK** appears in the display once copying is successfully completed.
10. Press the \leftarrow button.

6-1-3 Error Messages during the Firmware Update

If an error occurs during the update, one of the following error codes is shown in the display:

Error code	Meaning
C	Checksum error. /b may have been forgotten in the COPY command or the file is defective.
H	Header error. /b may have been forgotten in the COPY command or the file is defective.
E	EPROM could not be cleared.
V	Programming voltage is too low.
P	Programming error.

Table 20. Possible Error Codes with a Firmware Update

i If an error occurs with a firmware update, the old firmware version is no longer usable. Restart programming in this case.

6-2 Clearing Service Counter

 Access only when service key is inserted!

The printer has total and service counters.

- **Total counter:** The total counter contains the values for the entire service life of the printer up to now. The values of the total counter are displayed in the *Short status* and in the *Status print*.
- **Service counter:** The service counter can be reset after more substantial maintenance or repair work with the service key inserted. Here, it provides information on the printing output since the last reset. The values of the service counter are displayed in the *Status print*.
- The following data is recorded in both counters:

Data	Description
Operative time	Printer switch-on time
Number of labels	Number of labels printed
Transfer printing	Length of medium printed with transfer printing
Thermal printing	Length of medium printed with thermal direct printing

Table 21. Total and service counter data

1. Insert service key into a USB master interface.
2. Press the **menu** button.
3. Select **Service > Clr. service ctr.** menu.
4. Press the \leftarrow button. **No** appears in the display.
5. Use the \blacktriangle and \blacktriangledown buttons to select **Yes**.
6. Press the \leftarrow button. The data recorded by the service counter is set to the value 0.

You can use the status print to check whether the values were reset. The service counter values are listed in parentheses under the total counter values there.

6-3 Adjusting Label Sensor

 Access only when service key is inserted!

You can adjust the label sensor with the **Adj. gap sensor** function. This is necessary if the sensor or CPU PCB has been changed.

i Carry out adjustment of the sensor with the cover closed and housing mounted to keep out external light sources.

1. Insert service key into a USB master interface.
2. Press the **menu** button.
3. Select **Service > Adj. gap sensor** menu.
4. Press the ←button.
5. Open printhead.
In the display you are instructed remove the label medium from the sensor via the **Remove labels** message.
6. Remove label medium from the sensor.
7. Press the ←button.
In the display you are instructed to load the liner into the label sensor via the **Insert liner** message.
8. Load liner (without labels) into the sensor.
9. Ensure that no labels are found on the liner near the sensor. Otherwise, the result will be faulty adjustment and device malfunction.
10. Start adjustment of the label sensor with the ←button.
OK appears in the display after a successful adjustment.
11. Confirm completion of the adjustment with the ←button.

Error during adjustment:

If an error occurs while adjusting the label sensor, **Error** appears in the display. If an error occurs again when repeating the adjustment, one of the following assemblies may be defective:

- Label sensor
- Connection cable of the label sensor
- CPU PCB

6-4 Save Settings

i Access only possible with CF memory card inserted.

You can save the printer configuration to a CompactFlash memory card with the **Save settings** function. The configuration will be saved as XML file in the folder \MISC of the CF card. The current date is used as file name YYYYMMDD.XML (e.g. 20060802.XML for a file saved on 08-02-2006).

1. Insert CompactFlash card.
2. Press the **menu** button.
3. Select **Service > Save settings** menu.
4. If the function *Save settings* is protected via a PIN, use the buttons ▲, ▼, ► and ◀ to enter the code number and confirm with the ↵ button. Saving of the configuration data starts. **OK** is shown in the display when the entire saving procedure is complete.
5. Press the ↵ button.
6. Do not remove the memory card until the saving procedure is complete. An error message appearing during the saving procedure may be caused by an unreadable CF card (e.g., unknown card type, unformatted card). Information on formatting the CF card is found in "Formatting" on Page 57.

6-5 Load Settings

i Access only possible with CF memory card inserted.

You can load a printer configuration previously saved to a CF card into the printer with the **Load settings** function.

1. Insert CompactFlash card.
2. Press the **menu** button.
3. Select **Service > Load settings** menu.
4. If the function *Load settings* is protected via a PIN, use the buttons ▲, ▼, ► and ◀ to enter the code number and confirm with the ↵ button.
5. If several configuration files are found on the memory card, select the desired file with the ▲ and ▼ buttons.
6. Press the ↵ button. Loading the configuration data starts. **OK** is shown in the display when the entire loading procedure is complete.
7. Press the ↵ button.
8. Do not remove the memory card until the loading procedure is complete. If an error occurs during the loading procedure, an error message appears in the display. Restart the loading procedure in this case. If an error occurs again, you must enter the configuration parameters via the operating panel.

6-6 Changing OEM Name

 Access only when service key is inserted!

You can change the device designation with the **OEM Name** function.

1. Insert service key into a USB master interface.
2. Press the **menu** button.
3. Select **Service > OEM Name** menu.
4. Press the \leftarrow button.
A list of available names is shown in the display.
5. Use the \blacktriangle and \blacktriangledown buttons to select the desired **OEM name**.
6. Press the \leftarrow button.

6-7 Cleaning Interval

 Access only when service key is inserted!

The *Cleaning interval* function is used for additional printhead maintenance control. You can select the length of medium which passes the printhead in increments of 500 m after which the printhead is to be cleaned.

1. Insert service key into a USB master interface.
2. Press the **menu** button.
3. Select **Service > Cleaning interval** menu.
4. Press the \leftarrow button.
5. Select the desired value with the \uparrow and \downarrow buttons.
6. Press the \leftarrow button.

If the set length of the medium (label strip, transfer ribbon) has passed the printhead and an error occurs in the flow of the medium (e.g. label end, transfer ribbon end), the *Clean printhead!* message appears in the display. The error message for the error which occurred is not displayed until you acknowledge this message. As long as no errors occur in the medium flow, no messages are displayed and the print job is continued even if the cleaning interval has passed.

You can deactivate the *Cleaning interval* function by setting the value **Off**.

7 FTP Printer Management

Using the File Transfer Protocol (FTP), you can manage and transfer files on the network via the Ethernet interface. You will require an FTP program (FTP client) which supports the "binary" transfer mode to manage the printer. The printer functions as an FTP server.

FTP printer management is comprised of four functions:

- management of the memory card installed in the printer (see 8, on page 55)
- printer firmware update (see 6-1-1, on page 47)
- IFFS management (see 7-2, on page 54)
- direct printing via copying .LBL files (see 7-2, on page 54)

7-1 FTP Logon

To establish an FTP connection, the client must be logged on to the server. The logon type depends on the client. The following information must be specified in any case, however:

- IP address of the printer
- User name and password

Access to the printer management functions depends on the user name:

User name	Password	Executable functions
anonymous	any	Display and download of the files stored on the memory card. Display of the IFFS contents.
root	printer PIN	Display, upload and download of memory card data, the IFFS contents and FTP firmware update. Label files loaded on the memory card must be of the .LBL type.

Table 22. Data for establishing an FTP connection

After logging on, you can access the FTP server in a manner similar to a Windows folder.

i It is absolutely necessary to define a PIN for FTP access with the username "root". The initial setting of the PIN can be made via the operating panel of the printer or via the printer website.

7-2 Directory Structure of the FTP Server

The files accessible via FTP are found in several folders:

Folder name	Contents
iffs	Contents of the IFFS (Internal Flash File System). When logging on with the user-name "root", the contents of the IFFS can be managed.
system	Firmware file of the printer
execute	Printing of label files stored in this folder is started immediately. The files must be of the type .LBL . The corresponding file is deleted once the print job is complete.
Display of the following folders depends on the installed memory card and the card slot defined as the primary slot:	
card	Data of the memory card in the primary card slot. The files are separated into several subfolders based on their type. The structure of the subfolders depends on which card type is primary.
cf	Data of the CompactFlash memory card in the printer if the CF card slot is not primary. The files are separated into several subfolders accordingly based on their type. When copying the files to the "cf" folder, type-based sorting occurs automatically in the subfolders.
pccard	Data of the PC card if the card slot is not primary. This folder does not have a substructure.

Table 23. Directory structure of the FTP server

7-3 FTP Firmware Update

To carry out a firmware update, you must be logged on with the username "root" (see 7-1, on page 53).

1. Ensure that the printer is in "Ready" mode (see 4-2-2-1, on page 26).
2. Set the "binary" transfer mode in the FTP client.
3. Open the "system" folder.
4. Copy a valid firmware file (e.g. 304_6727.x2) to the "system" folder. *FTP-Firmware-UPd* appears in the display of the printer. The status of the saving procedure is shown by a progress indicator in the display. The printer resets automatically after the update is carried out successfully.

You can check whether the firmware update was carried out successfully on the "Status" tab of the printer website.

8 Memory Cards

You can save graphics, fonts, label descriptions and database information for the long-term on a memory card.

i Always create a backup copy of the memory card in case of a malfunction.

Always create a backup copy of the memory card in case of a malfunction. You can use the following memory card types:

- Type 1 CompactFlash card up to a maximum size of 1 GB in the corresponding card slot of the printer
- PC card (PCMCIA) in the corresponding card slot of the printer

8-1 Insertion and Removal

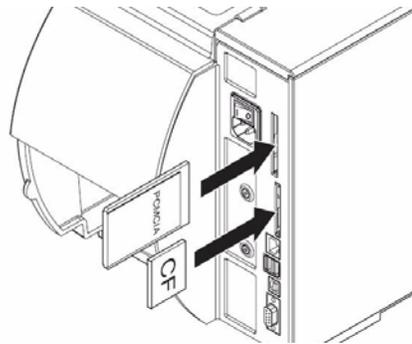


Figure 22. Inserting memory card

i When memory card is slid onto contact pins, light physical resistance can be felt.

1. Slide memory card contact-side first into the slot as far as it will go. The rear section of inserted memory card still extends from device housing so it can be removed by hand.
2. Press the **menu** button.
3. Check whether the **Memory card** menu is shown in the display. If the **Memory card** menu is not shown in the display, it could be because:
 - you have not selected the card slot being used as the primary card slot
 - you have not inserted the memory card far enough into the card slot
 - you have entered the memory card incorrectly.

i Do not remove memory card while it is being accessed. You can configure the printer so memory card access is indicated on status line (see 4-1-5, on page 23).

8-2 Formatting

If the memory card has not been preformatted in a suitable way, you must format it in the following manner:

- Formatting in the printer via the **Format card** (see 8-4-4, on page 60) menu item.
- Formatting in the printer via the interface with the Mf;name CR command, See “Programming Instructions”.
- Formatting in an appropriate drive of a PC. See documentation of the drive used.

8-3 Writing

The memory card can be written to in several ways. The most functionally secure way is writing to the card in the printer via a data interface.

i The card in the primary card slot is written to by default. You can write to a card in another slot if you specify the path name of the slot in the file name (see “Programming Instructions”).

Example:

With direct programming, the command sequence for saving a label (file **ABC**) has the following form:

Ms LBL; ABC	Command for Saving the File ABC
J	|
H 100,0,T	|
S |1;0,0,68,71,104	| Contents of the file ABC
T 10,10,0,3,pt15;memory card	|
A 1[NO PRINT]	|
Ms LBL	End of save command

- After transfer of the command sequence, the file ABC is saved on the memory card with the commands from J to A.
- Only one label is printed each time the file ABC is called up.
- The [NO PRINT] parameter in command A suppresses the printing of a label when the file is saved.
- If you would like to print the label a variable number of times, you must put command A after the ending Ms command.

8-4 Memory Card Functions in the Offline Menu

Accessing the *Memory card* menu is only possible if a memory card is installed.

You can still only operate the card slot set in the menu **Interfaces > Default card slot** via the operating panel (see 4-1-4, on page 21). When operating via an interface, each card slot can be addressed via a path.

8-4-1 Loading Label

You can print labels whose descriptions are saved on the memory card using the *Label from card* function.

1. Select the **Label from card** function in the *Memory card* menu.
2. Press the \leftarrow button. The name of the label found at the top of the index of the card is displayed.
3. Select the desired label in the index of the card with the \blacktriangle and \blacktriangledown buttons.
4. Press the \leftarrow button. If you have selected a label which was saved with a fixed label quantity, the print job is started immediately.

For label descriptions with a variable label quantity, you are requested by the display to enter the label quantity . If additional input on the label description is

required, the display requests you to enter the variable data .

5. Enter the label quantity/variable data with the following buttons:
 - \blacktriangleleft cursor left
 - \blacktriangleright cursor right
 - \blacktriangle increase value at cursor position by 1 or select next letter in alphabet
 - \blacktriangledown decrease value at cursor position by 1 or select previous letter in alphabet
6. Press the \leftarrow button briefly to confirm the input and start the print job.

Canceling input:

You can cancel the selection of the label and the label quantity at any time by pressing and holding the \leftarrow button (at least 2 seconds).

8-4-2 Printing Card Index

You can print out the index of the installed memory card with the *Print directory* function.

1. Insert printable medium (labels, endless paper) which extends across the entire printing width.
2. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
3. Press the **menu** button.
4. Select the **Print directory** function in the *Memory card* menu.
5. Start printout with the ←button. The printout contains:
 - the name of the memory card
 - information on the saved files
 - the size of the available memory area

8-4-3 Copy Memory Card

You can copy all the data from one memory card to another with the *Copy memory card* function. Copying between memory cards with different memory capacities is possible. You can also use memory cards which already contain data as a destination medium.



CAUTION!

Data loss when copying.

If files with the same name are found on the original and copy cards, the files on the copy card are overwritten without any prior notification. In addition, removal of the memory card during the copying procedure leads to data loss.

⇒ *Check files for the same name before copying.*

⇒ *Only remove or insert memory cards when so instructed in the display.*

You can prevent unauthorized copying of memory cards by using a PIN (see 4-1-6, on page 24).

1. Insert original card. (see 8-1, on page 55)
2. Press the **menu** button.
3. Select **Memory card > Copy memory card** with the buttons **▶** and **◀**
4. Press the **↵** button. A selection field with the selection **No** appears in the display.
5. Use the **▲** and **▼** buttons to select **Yes**.
6. Press the **↵** button.
7. If the function *Copy memory card* is protected via a PIN, use the **▲**, **▼**, **▶** and **◀** buttons to enter the code number and confirm with the **↵** button.

The copying procedure starts. When copying larger amounts of data, the copying procedure is carried out in several copying cycles. An increasing progress indicator is shown in the display during a copy cycle. The *Insert dest.* instruction then appears.

8. Remove original card and insert the card to be written to. The data read from the original card is transferred to the copy card. The progress indicator in the display shrinks during this process. If only part of the data from the original card was read out, the *Insert source* instruction appears.
9. Remove copy card and insert original card again. The next copy cycle begins.
10. Repeat the previous two steps until all data has been copied. *OK* is shown in the display when the entire copying procedure is complete.
11. Press the **↵** button.

If the card to be written to can no longer accept data during the copying procedure, the *Card full* error message appears in the display.

8-4-4 Format Card

You can delete all data from a memory card with the *Format card* function. This reformats the memory card. You can also use the *Format card* function if the *Unknown card* or *Structural err.* error message was output when using the card.

You can prevent unauthorized deleting of memory cards by using a PIN (see 4-1-6, on page 24).

1. Insert a memory card (see 8-1, on page 55").
2. Press the **menu** button.
3. Select **Memory card > Format card** with the buttons ► and ◀.
4. Press the ↵button.
A selection field with the selection **No** appears in the display.
5. Use the ▲ and ▼ buttons to select **Yes**.
6. Press the ↵button.
7. If the function *Format card* is protected via a PIN, use the buttons ▲, ▼, ► and ◀ to enter the code number and confirm with the ↵button.
The deleting procedure starts.
8. Do **not** remove the card from the printer during the deleting procedure. The memory volume of the card is shown in the display as soon as the deleting procedure is complete.
9. Press any button.

8-4-5 Printing File Contents

The label files on a memory card consist of a sequence of printer commands. You can print these command sequences in text form with the *ASCII dump (Card)* function.

1. Insert printable medium (labels, endless paper) which extends across the entire printing width.
2. If the printout is to occur using thermal transfer printing, insert transfer ribbon with the maximum width.
3. Insert a memory card (see 8-1, on page 55").
4. Press the **menu** button.
5. Select the **ASCII dump (Card)** function in the *Memory card* menu.
6. Press the ↵button. The index of the memory card is shown in the display.
7. Select the desired label file in the index of the card with the ▲ and ▼ buttons.
8. Start printout with the ↵button. The data printout is started after four lines are received. For this reason, it is often necessary to call up the last few lines of a label description with the **feed** button. You can cancel the printout of the label description with the **cancel** button.

9 External Keyboard

You can connect an external keyboard or compatible input device (e.g., barcode scanner) directly to the printer. Using an external keyboard facilitates the entry of variable data while processing print jobs and printing from the memory card.

Input prompts and the data received from the keyboard are shown in the display.

9-1 Connecting External Keyboard

You can connect any MF-2-compatible USB keyboard supporting code set 3 to the printer.

- ⇒ Insert connection cable of the keyboard into the USB master interface on the back of the printer.

9-2 Special Key Functions

General:

[F1]	Executes the <i>Label from card</i> memory card function.
[F2]	Prints an additional label from the last print job. Corresponds to the command A1CR .
[F3]	Repeats last print job with renewed polling of variable data and polling of label quantity.
[F8]	Functions in the same manner as <i>feed</i> .
[Enter]	Switches to the offline menu. Functions in the same manner as <i>menu</i> .
[Esc]	Functions in the same manner as <i>cancel</i> .
[Space]	Functions in the same manner as <i>pause</i> Not for continuing after an error.

Table 24. Special key functions: general

In the offline menu and for entry of variable data:

□	Moves cursor left. On the top level of the offline menu, switches back to <i>Ready</i> mode.
□	Moves cursor right.
□	Increases the value at the cursor position.
□	Decreases the value at the cursor position.
[Enter]	Confirms the input.
[Esc]	Cancels input and returns.

Table 25. Special key functions: offline menu and data input

9-3 Key Assignment and Special Characters

The printer features a specific keyboard assignment table for each setting of the **Country** configuration parameter. These tables generally match the DOS keyboard assignments (see 4-1-4, on page 21"). The [Alt Gr] key has no function. All special characters obtained using this key (e.g., [] { } \) and various other special characters (e.g., " × ÷) can be obtained using the [Alt] key. Additional special characters can be output using a sequence of two characters, whereby you must press the [Alt] key when entering the second character.

Some special characters cannot be shown in the display of the printer. In the case, they are replaced by a character similar to the special character.

i When using a scanner ensure that the same character set is set for both the scanner and the printer.

9-3-1 Country-Specific Special Characters:

The following country-specific special characters are entered with the [Alt] key pressed.

Character	[Alt] + key...												Character	[Alt]+...
€	E	E	E	E	E	E	E	E	E	E	E	E	-	č
{	7	'			ä	à	ç	7	8	'	7	B	.	ž
}	0	=			\$	\$	à	0	9	ç	0	N	"	á
[	8	(			ü	è	^	8	è	`	8	F	~	é
]	9	)			"	"	\$	9	+	+	9	G	÷	ú
\	β	-			<	<	<	+		°	<	Q	x)
|	<	-	`		1	1	&	<		1	'	W	đ	S
'									\	0			Đ	D
`							ù						†	K
^		è					μ						Ł	L
^		ç					\$						β	\$
^	^	^	6	6	\$	\$	²	\$	ì	<	½	;	&	C
"	<	,
~	+	é			^	^	=	"	ù	4	"	+	>	.
°			0	0				'	0	0		ř	*	-
²	2								2					CZ
³	3								3					
#		"			3	3	"		à	3		X		
\$								4			4	ů		
¢					8	8								
£								3			3			
¤		\$..		
@	q	à			2	2	é	2	ò	2	2	V		
μ	m								m	m	m			
¬					6	6				6				
÷	/	/	/	/	/	/	/	/	/	/	/	/		
x	*	*	*	*	*	*	*	*	*	*	*	*		
	GR	FR	UK	US	SG	SF	BE	SU	IT	SP	DK	CZ		

Table 26. Country-specific special characters entered with the [Alt] key pressed.

GR: Deutschland	SG: Schweiz	IT: Italia
FR: France	SF: Suisse	SP: España
UK: United Kingdom	BE: Belgique	DK: Danmark
US: USA	SU: Suomi	CZ: Ceska republika

Characters between vertical lines (| / |, | * |) are entered with the corresponding keys on the numerical keypad of the keyboard.

9-3-2 Other Special Characters

A special character in the ZZ column can be entered by first entering the corresponding character in the Z1 column and then entering the character in the Z2 column while pressing the [Alt] button.

ZZ	Z1	Z2	ZZ	Z1	Z2	ZZ	Z1	Z2	ZZ	Z1	Z2
À	`	A	Ö	`	O	â	°	a	ò	`	o
Á	'	A	Ó	'	O	æ	a	e	ó	'	o
Â	^	A	Ô	^	O	ä	_	a	ô	^	o
Ã	~	A	Õ	~	O	ç	,	c	õ	~	o
Ä	"	A	Ö	"	O	ç	|	c	ö	"	o
Å	°	A	Ø	/	O	č	ˇ	c	ø	/	o
Æ	A	E	Œ	O	E	d'	'	d	œ	o	e
Ç	,	C	Ř	ˇ	R	è	`	e	°		o
Č	ˇ	C	Š	ˇ	S	é	'	e	í	'	r
D'	'	D	Û	`	U	ê	^	e	ř	ˇ	r
È	`	E	Ú	'	U	ë	"	e	š	ˇ	s
É	'	E	Û	^	U	ě	ˇ	e	ß	s	s
Ê	^	E	Ü	"	U	ì	`	i	t'	'	t
Ë	"	E	Ý	'	Y	í	'	i	ù	`	u
Ì	`	I	Ÿ	-	Y	î	^	i	ú	'	u
Í	'	I	Ž	ˇ	Z	ï	"	i	û	^	u
Î	^	I	à	`	a	ij	i	j	ü	"	u
Ï	"	I	á	'	a	l'	'	l	ú	°	u
J	I	J	â	^	a	í	'	l	ý	'	y
£	-	L	ã	~	a	ñ	~	n	ÿ	"	y
Ñ	~	N	ä	"	a	ň	ˇ	n	ž	ˇ	z

Table 27. Special characters entered via a sequence of two characters

Example:

Entering the character ñ	1st entry: [~]	2nd entry: [Alt] + [n]
--------------------------	----------------	------------------------

i If necessary, use the information in Table 27 on Page 62 to enter the character Z1.

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