# Configuration Manual

**cab**



# cab Label Printers

# Configuration Manual
## for the following products

| Class | Type |
|-------|------|
| A+ | A2+ |
| | A4+ |
| | A4.3+ |
| | A6+ |
| | A8+ |
| | A4+M |
| MACH4 | MACH4 |
| | MACH4-24V |
| | MACH4-RFID |
| XD | XD4 |
| PX | PX4 |
| | PX4.3 |
| | PX6 |
| Hermes+ | Hermes+ 4L |

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# 1 Introduction

## 1.1 Instructions

Important information and instructions in this documentation are designated as follows:

**Danger!**
**Draws your attention to an exceptionally grave, impending danger to your health or life.**

**Warning!**
**Indicates a hazardous situation that could lead to injuries or material damage.**

**Attention!**
**Draws attention to possible dangers, material damage or loss of quality.**

**Notice!**
**Gives you tips. They make a working sequence easier or draw attention to important working processes.**

Environment!
Gives you tips on protecting the environment.

▶  Handling instruction

▷  Reference to section, position, illustration number or document.

∗  Option (accessories, peripheral equipment, special fittings).

Time  Information in the display.

## 1.2 Intended Use

- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to the life and limb of the user or third parties and/or damage to the device and other tangible assets can arise during use.
- The device may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in the operating manual.
- The device printer is intended exclusively for printing suitable materials that have been approved by the manufacturer. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.
- Usage for the intended purpose also includes complying with the operating manual, including the manufacturer's maintenance recommendations and specifications.

**Notice!**
**The complete documentation is included in the scope of delivery on CD ROM, and can also currently be found in the Internet.**

## 1.3 Safety Instructions

- The device is configured for voltages of 100 to 240 V AC. It only has to be plugged into a grounded socket.
- Only connect the device to other devices which have a protective low voltage.
- Switch off all affected devices (computer, printer, accessories) before connecting or disconnecting.
- The device may only be used in a dry environment, do not expose it to moisture (sprays of water, mists, etc.).
- If the device is operated with the cover open, ensure that people's clothing, hair, jewelry etc. do not come into contact with the exposed rotating parts.
- The device or parts of it can become hot while printing. Do not touch during operation, and allow to cool down before changing material and before disassembly.
- Perform only those actions described in this operating manual.
  Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions.
- Other unauthorized work on or modifications to the device can also endanger operational safety.

- Always have service work done in a qualified workshop, where the personnel have the technical knowledge and tools required to do the necessary work.
- There are various warning stickers on the device. They draw your attention to dangers.
  Warning stickers must therefore not be removed, as then you and other people cannot be aware of dangers and may be injured.

**Danger!**
**Danger to life and limb from power supply.**
▶ **Do not open the device casing.**

## 1.4 Environment

Obsolete devices contain valuable recyclable materials that should be sent for recycling.

▶ Send to suitable collection points, separately from residual waste.

The modular construction of the printer enables it to be easily disassembled into its component parts.

▶ Send the parts for recycling.
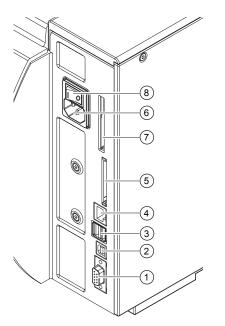
The electronic circuit board of the device is equipped with a lithium battery.

▶ Take old batteries to collection boxes in shops or public waste disposal centers..

Choose from the following options for connecting a computer to the label printer:

- Direct connection to the serial RS-232 interface (1) ($\triangleright$ "2.1" on page 7).
- Direct connection to the Ethernet interface (4) ($\triangleright$ "2.2" on page 7).
- Connection via a computer network to the Ethernet interface (4) ($\triangleright$ "2.2" on page 7).
- Direct connection to the high-speed USB slave interface (2) ($\triangleright$ "2.3" on page 8).
- Connection via an optional interface adapter (Parallel/Centronics, RS-422/485) to a USB master interface (3).
- Connection to a wireless network via optional WLAN card installed in the slot for type II PC card.

1 Serial RS-232 interface
2 USB 2.0 high speed slave interface
3 Two USB master interfaces for keyboard, scanner and optional interface adapters, USB flash drive or service key
4 Ethernet 10/100 Base T interface
5 Slot for CompactFlash memory card
6 Power connection jack
7 Slot for type II PC card or WLAN card
8 Power switch

Fig. 1        Power and computer connections

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

## 2.1 Connecting Label Printer via Serial RS-232 Interface

### 2.1.1 Connecting Label Printer

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

▶ Connect computer and label printer with a suitable cable.

▶ Secure cable connections with the screws found at the plugs.

▶ Configure the RS-232 interface of the printer to match the settings of the connected computer (▷ "4.1.4" on page 18).

If problems occur, contact the computer manufacturer for interface assignments and note the pin assignment of the SUB-D jack described below.

### 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.

| | Pin | Designation | Function |
|---|---|---|---|
| Pin5   Pin1  Pin9   Pin6 | 1 | CD | Carrier Detect |
| | 2 | TxD | Transmit Data |
| | 3 | RxD | Receive Data |
| | 4 | DTR | Data Terminal Ready (not used) |
| | 5 | GND | Ground |
| | 6 | DSR | Data Set Ready (not used) |
| | 7 | RTS | Request to Send |
| | 8 | CTS | Clear to Send |
| | 9 | RI | Ring Indication (not used) |
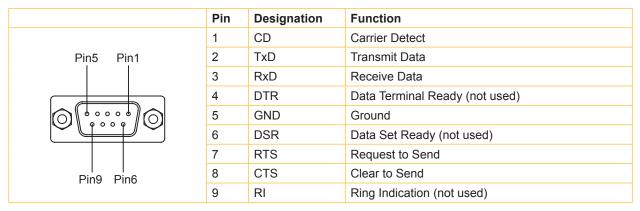
Table 1        Pin assignment of the 9-pin SUB-D jack

## 2.2 Connecting Label Printer via Ethernet Interface

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

**! Attention!**
**A shielded cable must be used to connect the printer to the network.**

1. Connect computer and label printer with a suitable cable.
2. Make basic settings for operation of the Ethernet interface (▷ "4.1.4" on page 18).
3. Call up the printer website (▷ "4.2.1" on page 21).
4. Open the "Setup" tab on the printer website.
5. Set the parameters described in table 12 on page 24 in the path `Setup > Interfaces > Ethernet`.
6. Click **Set** on the "Setup" tab (▷ page 23).
7. Enter PIN and click **Confirm**.
8. Set up print service if necessary (▷ "2.2.1" on page 8).
9. Adjust Windows printer setting (▷ "2.2.2" on page 8).

**! Attention!**
**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       Connecting Label Printer to Computer**

### 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 from 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 2       Availability of print services Raw-IP and LPD in Windows

Information on installation   ▷ 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, Windows standard applications can be used to edit the label contents and to start the print jobs. To use the Raw-IP or LPD print services, the Windows printer settings must be adjusted:

1.   Open the folder containing the printers via Start > Settings > Printers.

2.   Right-click the icon of the label printer.
     A pop-up menu appears.

3.   Select "Properties" in the pop-up menu.

4.   Open the "Details" or "Connections" tab.
     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.

5.   Select the Raw-IP or LPD connection.

6.   Click **OK**.

## 2.3     Connecting Label Printer via USB Interface

The high-speed USB interface allows the label printer to be operated via a USB interface of a computer running the operating system Windows 2000, Windows XP 32bit / 64bit, Windows 2003 32bit / 64bit and Windows Vista 32bit / 64bit.

A printer driver must be installed if a USB interface will be used for connection. The printer driver for your unit is found on the "Printer Accessories CD" which is included in the scope of delivery or on the internet.

1.   Switch label printer off..

2.   Connect computer and label printer with an A-B cable.

3.   Switch computer on.

4.   Place the "Printer Accessories CD" in the CD-ROM drive.

5.   Exit all programs currently running.

6.   Switch printer on.
     The Windows Installation Wizard is started automatically.

Follow the on-screen instructions. The source of the installation file is
     "D:\windrv\win32\"     for Windows 2000 / XP 32bit / Server 2003 32bit  / Vista 32bit / Server 2008 32bit /
                            Windows 7 32bit or
     "D:\windrv\win64\"     for Windows XP 64bit / Server 2003 64bit / Vista 64bit / Server 2008 64 bit /
                            Windows 7 64bit
     where D is the letter of the CD-ROM drive used.
     After successful installation, an icon for the label printer appears in the Windows "Printer" system folder.

7.   Click icon in "Printer" system folder and make printer settings if necessary.

## 2.4    Connecting Label Printer via Optional Interfaces

For the printer the following optional interfaces are available :
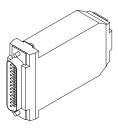
- Parallel/Centronics
- RS-422/485
- WLAN card 802.11b/g

The Parallel/Centronics interface and the RS422/485 interface must be connected at a USB master interface of the printer. In order to install the WLAN card the slot for the PC card must be used.
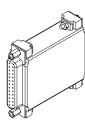
**i**    **Notice!**
**For detailed information see the Operating Instructions for the respective optional interface.**



Parallel/Centronics                    RS422/485                    WLAN Card

Fig. 2            Optional Interfaces

## 3.1 Structure of the Offline Menu

The offline menu contains setting options on several levels for configuring the label printer. In addition, the offline menu features test functions for supporting the configuration or checking the function of the label 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 medium inserted in the default card slot |
|  | Print directory |  |
|  | Copy memory card | ✳ Only with memory card or USB flash drive inserted, |
|  | Format card | PIN protection possible |
|  | ASCII dump (Card) | ✳ Only with memory medium inserted in the default card slot |
| Short status |  |  |
| Test | Status print |  |
|  | Font list |  |
|  | Device list |  |
|  | WiFi status | ✳ Only with WLAN card installed |
|  | ASCII Dump mode |  |
|  | Test grid |  |
|  | Label profile |  |
|  | RFID measurement | ✳ Only at MACH4 with RFID unit |
|  | Event log | Only with service key inserted |
| Setup | Local setting | 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 | ✳ Only with memory medium inserted in the default card slot<br>PIN protection possible |
| | 402↓000 Clr. service ctr. | 🔑 Only with service key inserted |
| | 🔍 Adj. gap sensor | |
| | 📄 Save settings | ✳ Only with memory medium inserted in the default card slot |
| | 📄 Load settings | PIN protection possible |
| | 🔧 OEM Name | 🔑 Only with service key inserted |
| | 🧹 Cleaning interval | PIN protection possible |
| 🪙 PPP™ | ℹ Short status PPP™ | |
| | 💶 Load PPP voucher | ✳ Only with memory medium inserted in the default card slot<br>PIN protection possible |

Table 3    Menu structure

## 3.2    Navigating in the Offline Menu

All settings and functions in the offline menu can be controlled with the navigator pad.
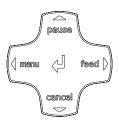


Fig. 3    Navigator pad

| Key | Menu | Parameter setting | |
|---|---|---|---|
| | | Parameter choice | Numeric value |
| ▲ | Return from a submenu | - | Increase of the number at the cursor position |
| ▼ | Jump into a submenu | - | Decrease of the number at the cursor position |
| ◀ | Menu option to the left | Sheets to the left | Cursor shift to the left |
| ▶ | Menu option to the right | Sheets to the right | Cursor shift to the right |
| ↵ | Start of a selected menu option<br>Pressing 2 s: Leaving the offline menu | Confirmation of the selected value<br>Pressing 2 s: Abort without changing the value | |

Table 4    Key function in the offline menu

ℹ **Notice!**
**All settings in the offline menu also can be made via the Ethernet interface (▷ page 23) or via direct control commands (▷ "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 to PIN-protected configuration parameters and functions without entering the PIN
- Access to configuration parameters for optional assemblies, even if they are not currently installed

**Attention!**

**Incorrect settings and data loss via unauthorized access.**

**Access protection is deactivated when the service key is inserted. Operation of the 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.**
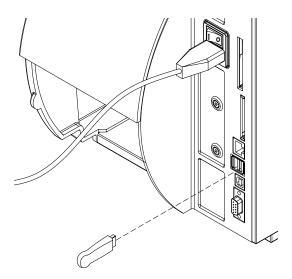


Fig. 4          Inserting the service key

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

The service key also can be inserted while the device is switched on.

**Notice!**

**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!**

## 4.1 Configuration via Operating Panel

A host of parameters for configuring the printer are found in the Setup menu of the offline menu.

▶ Configure the printer via the operating panel during initial commissioning and when making major changes to the operational conditions.

▶ For changes required for processing different print jobs use software settings.

**Notice!**

**The Setup menu can be protected from unauthorized access via a code number (PIN).**

### 4.1.1 Local Settings

▶ Press the **menu** button.

▶ Select Setup > Local settings.

| Parameter | | Meaning | Default |
|---|---|---|---|
| | Country | Setting the display language and the country-specific date and time formats. | UK |
| | | The time formats can also be overwritten via software. The changes are not saved permanently, however. | |
| | 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. | – |
| | | The date can also be changed 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. | |
| | | The time can also be changed via software. The change is not saved permanently, however. | |

Table 5        Parameters of the menu Setup > Local settings

## 4.1.2 Machine Parameters

▶ Press the **menu** button.

▶ Select `Setup > Machine param.`.

| Parameter | | Meaning | Default |
|---|---|---|---|
| | `Printhead pos. X` | Shifting of the entire print image perpendicular to the direction of paper flow. <br><br> The absolute shifting is limited by the margins of the print zone. Those are determined by the width of the printing line on the printhead. The `Printhead pos. X` can also be set via software. The offset values from the `Machine param.` menu and the software are added together. | 0,0 mm |
| | `Printhead pos. Y` | Shifting of the entire print image in the direction of paper flow. With positive values, printing begins later in the direction of paper flow. <br><br> Shifting of the print image in the direction of paper flow also influences the peel and cutting positions. <br><br> ▶ Correct the `Peel position` and `Cut position` parameters by the same value in the opposite direction. <br><br> The `Printhead pos. Y` can also be set via software. The offset values from the `Machine param.` menu and the software are added together. | 0,0 mm |
| | `Offset upper-lower head` | **at XD only** <br><br> Shift the print image of the upper printhead in the direction of the media. <br><br> With positive values, printing begins later in the direction of the media. The `Offset upper-lower head` can also be set via software. The offset values from the `Machine param.` menu and the software are added together. | 0,0 mm |
| | `Tear-off pos.` | Shifting of 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 the peel-off parameters for devices with peel-off function. <br> 🔑 **If peel-off module is not installed, access only with service key inserted** | |
| | `> Peel position` | Shift the position of the dispensed label relative to the dispensing edge. <br><br> The `Peel position` can also be set via software. The offset values from the `Machine param.` menu and the software are added together. | 0,0 mm |
| | `> Backfeed delay` | Delay time between removing the label from the peel position and the backfeed of the label. | 250 ms |
| | `> Limit peel-off spd.` | Limitation of the print speed in the peel-off mode to 100 mm/s. | On |
| | `Cutter` | Configuration of the cut parameters for devices with cutter. <br> 🔑 **If cutter is not installed, access only with service key inserted** | |
| | `> Cut position` | Offset of the cut position relative to the rear label edge. <br><br> The `Cut position` can also be set via software. The offset values from the `Machine param.` menu and the software are added together. | 0,0 mm |
| | `> Cut depth` | **with perforation cutter only** <br><br> Setting of the perforation depth. <br><br> The `Peel position` can also be set via software. The offset values from the `Machine param.` menu and the software are added together. | 0 |
| | `Applicator` | **at A+ and Hermes+ only** <br><br> Configuration of the optional applicator. ▷ Operating instructions of the applicator <br> 🔑 **If applicator is not installed, access only with service key inserted** | |

| Parameter | | Meaning | Default |
|---|---|---|---|
| | RFID | **at MACH4 with RFID unit only**<br>Configuration of the RFID unit<br>**✂ If RFID unit is not installed, no access to the RFID parameters** | |
| | > Void invalid labels | RFID labels with defective transponders are voided by block printing | `Off` |
| | > RFID error | Number of consecutive invalid RFID labels prior the operation is stopped and an error message is displayed | `1` |
| | > RFID power | Adaptation of the RFID power to the used labels | `Standard` |
| | I/O signals | **at PX only**<br>Configuration of the input signals of the I/O interface | |
| | > Mode START | Configuration of the START signal<br>`Edge`:<br>A label will be printed by switching on 24V between START and GND_EXT.<br>`Level`:<br>In **Rewind mode** labels are printed as long as 24V are switched on between START and GND_EXT.<br>In **Peel-off mode** a label will be printed after receiving the signal ETE as long as 24V are switched on between START and GND_EXT. | `Edge` |
| | > Mode WDR | Configuration of the WDR signal<br>`Edge`:<br>A label will be repeated by switching on 24V between WDR and GND_EXT.<br>`Level`:<br>A label will be repeated as long as 24V are switched on between WDR and GND_EXT.<br>`New/repeat`:<br>A label will be repeated when 24V are switched on between WDR and GND_EXT and the START signal will be activated additionally. | `Edge` |
| | Length correction | Correction of the print length in percent<br>🔑     **Access only with service key inserted!** | `0,0%` |
| | Backfeed position | Offset of the backfeed movement | `0,0 mm` |
| | Brightness 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 the last operation and activation of energy-saving mode. | `5 min` |
| | Debug mode | Operating mode which supports the firmware programmer when localizing errors. | `Off` |
| | Battery mode | **at MACH4 only**<br>Setting the control to 24 V battery mode<br>🔑     **Access only with service key inserted!** | `Off` |

Table 6      Parameters of the menu `Setup > Machine param`.

### 4.1.3     Print Parameters

▶ Press the **menu** button.

▶ Select `Setup > Print param.`.

| Parameter | Meaning | Default |
|---|---|---|
| Heat level | Heating value for compensating for the differing thermal behavior of printheads. Changing this value is then especially necessary if the printing intensity has changed after replacing the printhead.<br><br>▶ To adapt the printing intensity when using different media, print speeds or printing contents, you should change the heat level in the software.<br><br>The settings from the `Print param.` menu and the software are added together.<br><br>The `Heat level` setting also affects the test printouts. | 0 |
| Print speed | Basic print speed setting.<br><br>The print speed can be re-specified for each print job via software. The basic setting is not changed by this.<br><br>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.<br><br>`Off` for thermal direct printing: Sensor for monitoring the transfer ribbon is not activated.<br><br>The setting can be overwritten for each print job via software. The basic setting is not changed by this. | 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 |
| Ribbon saver | **at PX only**<br><br>`JScript`: Ribbon saver can be activated by the software ▷ Programming Manual<br><br>`On`: Ribbon saver is always active | JScript |
| Label sensor | Method for detecting the starting end of the label.<br><br>`Gap Sensor`: Detection using changes in the transparency between the label and label gap.<br><br>`Bottom-Reflect`: Detection using reflex marks on the bottom of the medium.<br><br>`Continuous media`:<br><br>🔑 **If cutter is not installed, access only with service key inserted!**<br><br>Synchronization of the paper flow when using endless media in cutting mode.<br><br>▶ After loading media press the **feed** key.<br><br>That way a short feed and a synchronization cut are realized. | Gap sensor |
| Extrapolate pos. | The positions of the labels which are between the label sensor and the printhead are calculated from the first label recognized by the sensor and the programmed label distance. That way those labels can be printed.<br><br>🔑 **Access only with service key inserted!** | Off |
| Warn level labels | Warning via the Ethernet interface by way of an SNMP message or e-mail sent when the remaining diameter of the label supply roll undershoots the set value (45–300 mm). | Off |

| Parameter | Meaning | Default |
|---|---|---|
| Tear-off mode | Positioning the label medium for tearing off at the tear-off plate.<br>On: Additional advancement of the label medium which positions the label gap after the last printed label at the dispense plate.<br>Off: Label advance stops once the last label has fully passed the print line. | Off |
| Backfeed | Method for backfeeding the label medium.<br>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.<br>always: Backfeeding occurs independently of label contents.<br>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 |
| Backfeed | **at PX only**<br>Printhead behavior during label backfeed.<br>head lift-off: Printhead will be lifted away from the print roller<br>head down: Printhead remains down on the print roller | head down |
| Error-Reprint | On:  With a correctable error and corresponding troubleshooting, the label being printed when the error occurs is repeated.<br>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 |
| Pause on media low | The printer switches to the **Pause** state when rest diameters set in the parameters Warn level ribbon or Warn lave labels are undershot. | Off |
| Protocol error | On: Printer switches to Error mode when unknown or faulty data is received.<br>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 to set the Protocol error parameter to Off.<br><br>**! Attention!**<br>**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.**<br><br>**Access only when service key is inserted!** | On |
| Barcode error | On:  With faulty barcode contents or size specifications, printing is interrupted.<br>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 the printing area in the ASCII Dump test function (▷ "5.7" on page 34).<br>With the Automatic setting, the printout of the control sequences arriving at the printer occurs over the maximum printing width. The printing area width can be reduced down to 50 mm. | Automatic |

Table 7     Parameters of the menu Setup > Print param.

## 4.1.4 Interfaces

▶ Press the **menu** button.

▶ Select `Setup > Interfaces`.

| Parameter | Meaning | Default |
|---|---|---|
| Default card slot | Definition of the default card slot.<br>`CompactFlash` or `PC-Card`: card slots on the back of the printer,<br>`Ext. CompactFlash`: card slot in the external operating panel,<br>`USB Memory`: USB flash drive at USB master interface,<br>`IFFS`: Internal Flash File System | Compact-Flash |
| Character set | Selection of the character set table for adaptation to the computer system used. Switching the character set via software is not possible. Characters not available in the selected character set can be accessed using the Unicode table. | Windows 1252 |
| RS-232 | Interface parameters for data transfer via the serial RS-232 interface. | |
| > Baud rate | Speed (in Baud) of data transfer | 57.600 |
| > Handshake | Data transfer protocol | RTS/CTS |
| RS-422/485 | Configuration of the optional serial RS-422 or RS-485 interface.<br>▷ Operating instructions of the interface.<br>**If interface is not installed, access only with service key inserted** | |
| IEEE 1284 | Configuration of the optional Parallel/Centronics interface.<br>▷ Operating instructions of the interface.<br>**If interface is not installed, access only with service key inserted** | |
| Wireless LAN 802.11 | Configuration of the optional WLAN card<br>▷ Operating instructions of the interface.<br>**If interface is not installed, no access to the WLAN parameters** | |
| Ethernet | Configuration parameters of the Ethernet interface card<br>Additional configuration parameters for the Ethernet interface can be accessed via the printer website (▷ "Setup tab" on page 24.)<br>**With WLAN card installed no access to the wired Ethernet interface !** | |
| > DHCP | Method of issuing IP address<br>`On`: Dynamic issuing of IP address by the DHCP server<br>`Off`: Direct issuing of the IP address by the operator | On |
| > IP | IP address of the label printer. Only valid with `DHCP = Off.` | – |
| > Mask | Subnet mask (classification and address range) of the local network. Only valid with `DHCP = Off.` | – |
| > 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.<br>**If keyboard is not connected, access only with service key inserted!** | |
| > Layout | Country setting of the keyboard layout.<br>With the `Automatic` setting, the setting from the menu `Local settings > Country` is used.. | Automatic |
| > NumLock | Activation or deactivation of the numerical keypad on the keyboard. | On |

Table 8 Parameters of the menu `Setup > Interfaces`

## 4.1.5 Status Line

Select the parameters (widget) to be displayed in Ready mode.

▶ Press the **menu** button.

▶ Select `Setup > Status line`.

▶ Activate the desired widgets.

ℹ **Notice!**
**The display has a width 128 pixels. For that reasons it is not possible to display all widgets simultaneously. During the widget selection only those widgets are offered, which do not overfill the display. It may be necessary to remove widgets from the display before activating another one.**

| Parameter | | Meaning | Default | Width [Pixel] |
|---|---|---|---|---|
| | Clock | Displays the current time. | On | 32 |
| | Date sheet | Displays the current calendar day. | On | 20 |
| | Date/time digital | Digital display of current date and time | Off | 31 |
| | Ribbon supply | Displays the current ribbon supply in the form of a horizontal bar. | Off | 16 |
| | WiFi signal strength | Displays the current strength of the electromagnetic field with a WLAN connection. | Off | 14 |
| | Ethernet link status | Displays the Ethernet status. | Off | 13 |
| | Temperature | Displays the current printhead temperature. | Off | 8 |
| | PPP funds | Displays the 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 from cab. | Off | 15 |
| | abc debug | Debug window for abc programs | Off | 24 |
| | abc window | The lower display line is controlled by an abc program | Off | 128 |
| | User space | Content of the user memory in the clock circuit (max. 31 byte) | Off | 22 |
| | Used memory | Displays the current memory used in the form of a vertical bar. | Off | 15 |
| | Input buffer | Displays the current input buffer used in the form of a vertical bar. | Off | 11 |
| | Battery state | **at MACH4 - 24 V only:** Displays the current charge state | Off | 12 |
| | RFID state | **at MACH4 with RFID unit only :** top left : amount of transponder blocks or E1 write error, E2 read error, E3 block locking error bottom left : bytes per block or error details right : transponder power | Off | 24 |
| | Card access | Icon displayed while an installed memory medium is being accessed. | On | 8 |
| | Data transfer | Displays the current data transfer in the form of a falling drop. | On | 16 |

Table 9    Parameters of the menu `Setup > Status line`

### 4.1.6 Security 🔒

By activating a PIN, the `Setup` menu, certain memory medium functions and the firmware update can be protected from unauthorized access.

The protected menu items are then marked with the 🔒 symbol and are only accessible after the PIN is entered.

▶ Press the **menu** button.
▶ Select `Setup > Security`.

| Parameter | Meaning | Default |
|-----------|---------|---------|
| 🔒 `Security` | Status of the PIN activation | `Off` |
| 🔑 `PIN` | Setting of the PIN | `0000` |

Table 10     Parameters of the menu `Setup > Security`

## 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.

The printer website can be accessed with a Java-capable browser (e.g. Microsoft Internet Explorer, Netscape Navigator) via the Ethernet interface or the optional WLAN card. Use of the Java applets requires at least version 1.4.2 of Java.

### 4.2.1    Calling up the Printer Website

> **Attention!**
> **It is absolutely necessary to define a PIN in order 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 (▷ ”4.1.6” on page 20) or via the printer website (▷ “Setup tab” on page 23).**

▶  Start the browser.
▶  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.
▶  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 (▷ "Status tab" on page 21).
- Setup: configuration parameter settings (▷ "Setup tab" on page 23).
- System messages: automatic sending of messages via e-mail (▷ "System messages tab" on page 25).
- Printer status line: printer status line layout (▷ "Printer status line tab" on page 26).
- Fonts: overview of the available fonts (▷ "Fonts tab" on page 27).
- Devices: list of the hardware and optional components (▷ "Devices tab" on page 27).
- Help: online help (▷ "Help tab" on page 27).

**Status tab**
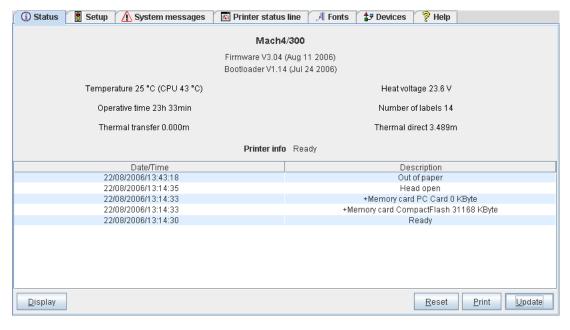


Fig. 5          "Status" tab on the printer website

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** **Notice!**

**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 | Opens a window which shows the current printer display. <br><br>  <br><br> The update interval (in s) can be set on the scale below the display. The display is not updated automatically with the "0" setting. |
| Reset | Hard : functions like switch-off and switch-on <br> Soft : functions like the **cancel** key |
| 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 11 Buttons on the "Status" tab

**Setup tab**

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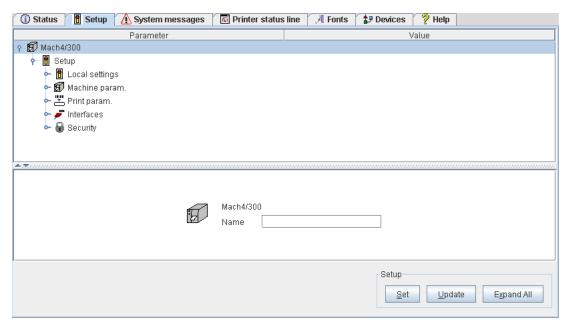


Fig. 6          "Setup" tab on the printer website

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.

**Notice!**

**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:<br>▶ Set parameter to "On".<br>▶ Enter IP address of the SMTP server.<br>▶ Enter a valid e-mail address for the printer in the "From address" field.<br>More detailed information on sending e-mails ▷ "System messages tab" on page 25. | Off |
| Raw-IP port | Service for printing on the network (▷ "2.2.1" on page 8).<br>▶ Select a predefined port address. | 9100 |
| LPD | Activation of the network printing service LPD (▷ "2.2.1" on page 8):<br>▶ Set parameter to "On".<br>▶ Typically activate the queue name "lp". Several print spoolers work without queue name. | Off |
| LPD queue name | Activation of the LPD queue name | lp |
| SOAP | Activation of the protocol SOAP (Simple Object Access Protocol) | Off |
| SOAP password | Password setting for SOAP | Off |
| SNMP | Data exchange between printer and management station via SNMP (Simple Network Management Protocol). To activate:<br>▶ Set parameter to "On".<br>▶ Enter IP address of the management station(s) (receiver 1 or receiver 2).<br>▶ Assign the "Community" parameter the value "public". | Off |
| Time server | Synchronization of the date and time of the printer. To activate:<br>▶ Set parameter to "On".<br>▶ Enter IP address of the time server..<br>Synchronization occurs hourly. The accepted time is not automatically saved in the printer, however. To save the accepted time:<br>▶ Call up the parameter time and save the displayed setting with OK. | Off |
| Anonymous FTP | Enables or disables a FTP-logon with as "Anonymous". | Off |

Table 12      Additional parameters for Ethernet interface

**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 or WLAN card. The messages to be sent and the destination addresses can be selected on the "System messages" tab.
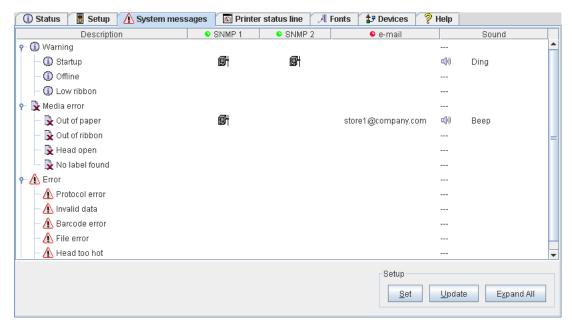


Fig. 7    "System messages" tab on the printer website

| Column | Meaning |
|---|---|
| Description | Status and error messages that can be sent. <br> ▶ Expand tree structure by clicking the circular symbol once or double-clicking the description. <br> 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 <br> 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 (▷ page 24). <br> ▶ Select management station by clicking the corresponding cell. <br> The selection is indicated via a symbol. To undo the selection click it again. |
| E-mail | Valid e-mail address for the SMTP server to which the message is to be sent. <br> ▶ Click cell and enter e-mail address or select from pull-down menu. |
| Sound | Audible signal which indicates receipt of the message. <br> ▶ Click cell and select signal type in pull-down menu. |

Table 13    Parameters on "System messages" tab

To change a parameter:

1. Locate the parameter in the tree structure.
2. Select the management stations or enter the e-mail address.
3. Select the sound.
4. **C**lick **Set**.
5. Enter PIN and click **OK**.

**Printer status line tab**

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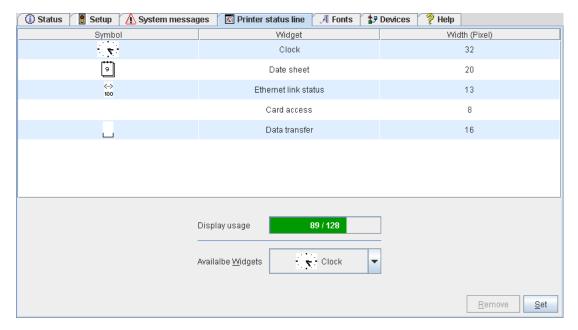


Fig. 8          "Printer status line" tab on the printer website

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.

Adding a status parameter:

▶  Select widget in pull-down menu. Note the text color:
    pale green :  Widget may be added
    pale red :    Widget may only be added, if another widget is deleted
    black :       Widget is already activated
▶  Click **Set**.

Removing a status parameter:

▶  Select parameter in the top section of the tab.
▶  Click **Remove**.

**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 |
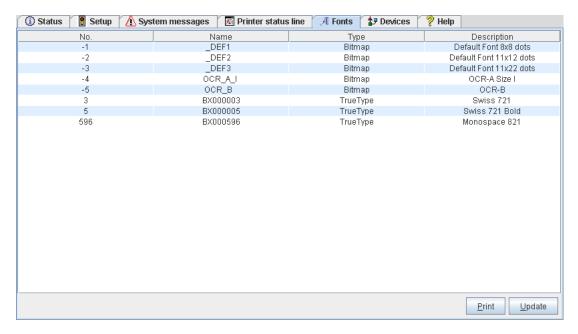
Fig. 9      "Fonts" tab on the printer website

The parameters correspond to those in the `Font list` and are described in table 12 on page 31.

**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 | Thor, #132062821190 |
| | PCB-Rev. 5, CPU-Rev. 3 |
| TPH | 300 dpi, 1248 dots |
| I/F 1 | Ethernet 10/100 MBit/s |
| | MAC: 00:02:E7:01:28:31 |
| I/F 2 | USB 2.0 Device |
| I/F 3 | RS-232 |
| CF | 30MB (Hitachi ATA 6.0) |
| | #, Rev 1.0 |
| PCCARD | 0kB |
| USB [1] | Generic/Generic Hub |
| [0] Full | Rev. 3.00 |
| USB [2] | cab/Front panel |
| [1/3] Low | #V1.01,Rev. 1.01 |
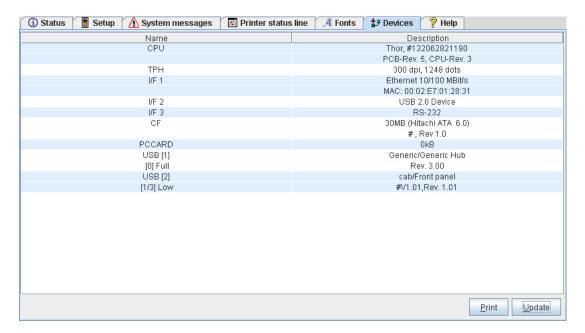
Fig. 10      "Devices" tab on the printer website

The contents of the display correspond with those of the `Device list` and are described in table 13 on page 32.

**Help tab**

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

## 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 medium

## 5.2 Short Status ⓘ

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

▶ Press the **menu** button.

▶ Select `Short status` menu.

▶ Scroll through the individual lines with the ▲ and ▼ buttons.

▶ 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 | `MACH4/300` |
| 2 | Version number of the printer operating system (firmware) | `Firmware V3.11` |
| 3 | Creation date of firmware | `(Aug  9 2007)` |
| 4 | Version number of the system loader (bootloader) | `Bootloader 1.18` |
| 5 | Creation date of the bootloader | `(May 29 2007)` |
| 6 | Serial number of the PCB CPU | `PCB #111070553751` |
| 7 | Revision of the CPU PCB and the CPU | `PCB/CPU Rev. 7/4` |
| 8 | Operative time and number of printed labels | `Hours/no. of labels: 156h/3564` |
| 9 | Previously printed paper lengths with thermal direct printing / thermal transfer printing | `Thermal/Transfer 13,54m/269,11m` |
| 10 | IP address of the label printer when connected to a network | `DHCP-IP 192.168.9.13` |
| 11 | mDNS name of the printer for Zeroconf (Zeroconf is a set of techniques that automatically create a usable IP network without configuration or special servers.) | `mDNS: cab-28154.local` |
| 12 | MAC address of the network adapter on the CPU PCB | `MAC 0002E70228F4` |
| 13 | Type and size of the installed memory medium | `CF 30MB` |
| 14 | Size of the Internal Flash-File-Systems (▷ Programming Manual) | `IFFS 8MB` |
| 15 | Resolution of the installed thermal printhead | `TPH 300dpi,1248dots` |

Table 14     Display in Short status menu

## 5.3 Status Print

\* **Function not available at A2+ !**

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

▶ 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.

▶ Press the **menu** button.

▶ Select `Test > Status` print menu.

▶ Start printout with the ↵ button.

The printout can be cancelled with the **cancel** button.

**Status print**

A4+/300 (cab-0874.cab.de)
Firmware V3.11 (Aug 9 2007)
Bootloader V1.18 (May 29 2007)
PCB serial #111070553751

Local settings
| Country | United Kingdom |
| Timezone | UTC+1 |
| Daylight saving | EU |
| Date | 10/09/2007 |
| Time | 13:17:28 |

Machine param.
| Printhead pos. X | 0.0 mm |
| Printhead pos. Y | 0.0 mm |
| Tear-off pos. | 0.0 mm |

Demand sensor
| Peel position | 0.0 mm |
| Trigger input | Off |
| Limit peel-off spd. | On |
| Backfeed delay | 250 ms | D |

Cutter
| Cut position | 0.0 mm |
| Trigger input | Off | C |

Applicator
| Mode of oper. | Stamp on |
| Mode of appl. | Print-Apply |
| Waiting position | up |
| Blow time | 10 ms |
| Roll-on time | 0 ms |
| Support delay on | 0 ms |
| Support delay off | 270 ms |
| Delay time | 0 ms |
| Lock time | 0 ms |
| Peel position | 0.0 mm |
| Vacuum control | On | A |

| Backfeed position | 1.0 mm |
| Brightn. LCD | 9 |
| Contrast LCD | 6 |
| Time Powersave | 5 min |
| Debug mode | On |

Print param.
| Heat level | 0 |
| Print speed | 100 mm/s |
| Transfer print | On |
| Warn level ribbon | 32 mm |
| Label sensor | Gap Sensor |
| Tear-off mode | On |
| Backfeed | always |
| Backfeed | head down |
| Error-Reprint | On |
| Protocol error | On |
| Barcode error | On |
| Pause reprint | Off | S |
| Width ASCII dump | Automatic |

Interfaces
| Default card slot | CompactFlash |
| Character set | Windows 1252 |

IEEE 1284
| Bidirectional | On | O |

RS-232
| Baud rate | 57600 |
| Handshake | RTS/CTS |

Keyboard
| Layout | Automatic |
| NumLock | On |

RS-422/485
| Interface | RS-422 |
| Baud rate | 57600 |
| Handshake | XON/XOFF | O |

Ethernet
| SSID | MyNet |
| Encryption | WPA-PSK (TKIP) | W |
| IP | DHCP;0.0.0.0 |
| Gateway | Off |
| SMTP server | Off | R |
| Return address | |
| Raw-IP port | 9100 |
| LPD | On | L |
| LPD queue name | lp |
| SNMP | On |
| Sink 1 | 0.0.0.0;public |
| Sink 2 | 0.0.0.0;public | E |
| Time server | Off |
| Anonymous FTP | Off |
| Network error | Off |

Security
| PIN | On |

Printer info
| Operative time | 760h 50min |
| | (Service: 760h 50min) |
| Number of labels | 10931 |
| | (Service: 10931) |
| Thermal transfer | 713.504m |
| | (Service: 713.504m) |
| Thermal direct | 690.315m |
| | (Service: 690.315m) |
| Temperature | 24°C (CPU 37°C) |
| Heat voltage | 24.0V |
| Brightness | 1/3,14/85 |

Pay-per-print
| PPP | 12 d | P |

Fig. 11 Status print

| A | displayed if an A+ printer is equipped with applicator or the service key is inserted |
| C | displayed if the printer is equipped with cutter or the service key is inserted |
| D | displayed if the printer is equipped with peel-off module or the service key is inserted |
| E | displayed if SNMP is "On" or the service key is inserted |
| L | displayed if LPD is "On" or the service key is inserted |
| O | displayed if optional assemblies are installed or the service key is inserted |
| P | displayed if the printer is operated in pay-per-print mode |
| R | displayed if the SMTP server is "On" or the service key is inserted |
| S | displayed when the service key is inserted |
| W | displayed if the WLAN card is installed or the service key is inserted |

**5**      **Test Functions**

The `Status print` contains the following information :

| Symbol | Information |
|---|---|
| | •    Device type and mDNS name of the printer for use in local networks without configuration<br>•    Version and creation date of the firmware<br>•    Version and creation date of the system loader (bootloader)<br>•    Serial number of the PCB CPU |
| | Current values of selected local settings ($\triangleright$ "4.1.1" on page 13) |
| | Current values of selected machine parameters ($\triangleright$ "4.1.2" on page 14). |
| | Current values of selected print parameters ($\triangleright$ "4.1.3" on page 16). |
| | Current values of selected interface parameters ($\triangleright$ "4.1.4" on page 18). |
| | Status of PIN activation ($\triangleright$ "4.1.6" on page 20). |
| | •    Operative time<br>•    Number of labels printed<br>•    Printed length with thermal transfer printing and thermal direct printing<br>•    Current measured values of the printhead temperature and heat voltage<br>•    Information on the working points of the label sensor |
| | Pay-per-print status |
| Line pattern | Lines differing in thickness at various distances. They are used to evaluate the print quality. |

Table 15      Information in `Status print`

## 5.4      Font List

✱      **Function not available at A2+ !**

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      **Notice!**

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

▶      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.

▶      Press the **menu** button.

▶      Select `Test > Font list` print menu.

▶      Start printout with the ↵ button.

The printout can be cancelled with the **cancel** button.



```
                    Font list
   Mach4/300 - 10/09/2007 -15:08:36
   Firmware V3.11 (Aug  9 2007) - #111070553751

   No.   Name      Type       Description
   -1    _DEF1     Bitmap     Default Font 12x12 dots
   -2    _DEF2     Bitmap     Default Font 16x16 dots
   -3    _DEF3     Bitmap     Default Font 16x32 dots
   -4    OCR_A_I   Bitmap     OCR-A Size I
   -5    OCR_B     Bitmap     OCR-B
   3     BX000003  TrueType   Swiss 721
   4     BX000005  TrueType   Swiss 721 Bold
   596   BX000596  TrueType   Monospace  821
```

Fig. 12            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 16      Parameters of the `Font list`

## 5.5 Device List

⁎ **Function not available at A2+ !**

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.

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

▶ 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.

▶ Press the **menu** button.

▶ Select `Test > Device list` print menu.

▶ Start printout with the ↵ button.

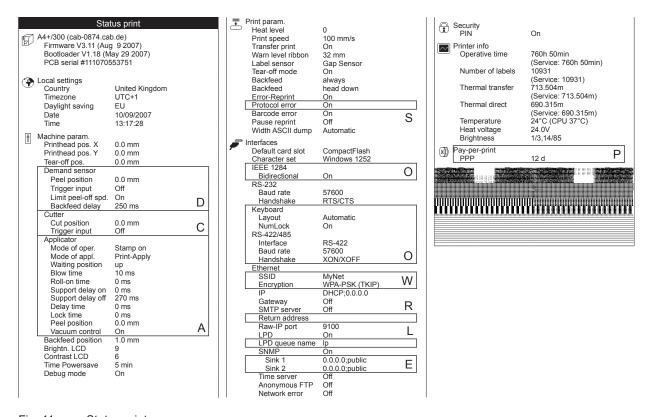The printout can be cancelled with the **cancel** button.

```
┌─────────────────────────────────────────────┐
│                 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]   │ Generic/Generic Hub
 [0] Full │ Rev. 3.00
          │ Mfr: 03EB,Class: 09/00,Protocol: 00, Phase: 20/0
USB [2]   │ cab/Service-Key
 [1/1] Low│ #7-5037793,Rev. 1.05
          │ Mfr: 0985,Class: FF/00,Protocol: FF, Phase: 20/4
USB [3]   │ cab/Frontpanel
 [1/3] Full│ Rev. 2.05
          │ Mfr: 0985,Class: FF/1C,Protocol: 00, Phase: 20/1

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 (www.freetype.org). All rights reserved.
mDNSResponder © 2002-2006 Apple Computer Inc. All Rights Reserved
Licensed under the Apache License, Version 2.0
```

Fig. 13        Device list

| Name | Information |
|------|-------------|
| CPU | Type and serial number of the CPU PCB<br>Revision of CPU PCB and CPU |
| TPH | Resolution and heating point number of the installed thermal printhead. |
| IF [x] | Type of interfaces installed<br>**x**: Number of interface |
| IFFS | Size of the Internal Flash File System |
| CF / CFEXT / PCCARD / USBMEM | Size and type of an installed external memory medium |
| USB [a]<br>  [b/c] Speed | Type and revision of installed USB devices<br>**a**: number of USB device<br>**b**: number of USB device to which device a is connected<br>**c**: number of interface of device b to which device a is connected<br>**Speed**: data transfer speed (low, full, high)<br><br>The following properties are only displayed when the service key is inserted:<br><br>**Mfr.**: Manufacturer ID. This identifies the manufacturer of the USB device<br>**Class**: Code for the USB device class<br>**Protocol**: Code for the type of communication with the USB device<br>**Phase**: Internal value for troubleshooting |

Table 17       Parameters of the `Device List`

## 5.6     WiFi Status (⦿)

∗    **Access only when a WLAN card is installed!**

∗    **Function not available at A2+ !**

The `WiFi status` function prints out a list the most important parameters of the accessible Wireless Access Points. The printout occurs using the heat level and print speed specified in the `Setup > Print param.` menu.

ⓘ   **Notice!**

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

▶ 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.

▶ Press the **menu** button.

▶ Select `Test > WiFi status` print menu.

▶ Start printout with the ↵ button.

The printout can be cancelled with the **cancel** button.



| WiFi status | | | |
|---|---|---|---|
| Mach4/300 - 10/09/2007 -15:21:00 | | | |
| Firmware V3.11 (Aug 9 2007) - #111070553751 | | | |
| Channel | Name/BSS ID | WiFi signal strength | Encryption |
| 6 | MyNet | ●●●●● | WPA-PSK (TKIP) |
| | 00:11:6B:61:8D:C1 | 54,0 MBit/s | |
| 11 | BT4233SA70 | ●○○○○ | WEP |
| | 00:11:6B:61:AB:82 | 54,0 MBit/s | |

Fig. 14      WiFi status

The parameters have the following meaning :

| Column | Meaning |
|---|---|
| Channel | Channel; frequency range of the Access Point |
| Name/BSS ID | Name of the wireless LAN<br>MAC address of the Access Points |
| WiFi signal strength | Scale of the WiFi signal strength<br>Data transfer rate |
| Encryption | Type of data encryption |

Table 18      Parameters of the `WiFi status`

## 5.7 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 are have been received.

ℹ️ **Notice!**
**The printout occurs without taking the label gaps into consideration and without transfer ribbon checking. This is why endless media are most suitable for this purpose.**

**If only media (labels, endless paper) is available which do not cover the entire printing width, the width of the printout can continuously be reduced down to 50 mm with the `Width ASCII dump` parameter (▷ "4.1.3" on page 17).**

ℹ️ **Notice!**
**In case of 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.**

▶ Load printable medium (labels, endless paper).
▶ If the printout is to occur using thermal transfer printing, insert transfer ribbon.
▶ 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 (▷ "4.1.3" on page 17).
▶ Press the **menu** button.
▶ Select `Test > ASCII Dump Mode` menu.
▶ Switch to ASCII dump mode with the ↵ button.
▶ Send print jobs.
▶ Call up the last few lines of a label description with the **feed** button.
▶ Press the **cancel** button 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 | $^N U_L$ | 08 | 08 | $B_S$ | 16 | 10 | $^D L_E$ | 24 | 18 | $^C A_N$ |
| 01 | 01 | $^S O_H$ | 09 | 09 | $H_T$ | 17 | 11 | $^D C_1$ | 25 | 19 | $E_M$ |
| 02 | 02 | $^S T_X$ | 10 | 0A | $L_F$ | 18 | 12 | $^D C_2$ | 26 | 1A | $^S U_B$ |
| 03 | 03 | $^E T_X$ | 11 | 0B | $V_T$ | 19 | 13 | $^D C_3$ | 27 | 1B | $^E S_C$ |
| 04 | 04 | $^E O_T$ | 12 | 0C | $F_F$ | 20 | 14 | $^D C_4$ | 28 | 1C | $F_S$ |
| 05 | 05 | $^E N_Q$ | 13 | 0D | $C_R$ | 21 | 15 | $^N A_K$ | 29 | 1D | $G_S$ |
| 06 | 06 | $^A C_K$ | 14 | 0E | $S_O$ | 22 | 16 | $^S Y_N$ | 30 | 1E | $R_S$ |
| 07 | 07 | $^B E_L$ | 15 | 0F | $S_I$ | 23 | 17 | $^E T_B$ | 31 | 1F | $U_S$ |

Fig. 15 Presentation of the control characters in `ASCII Dump Mode`

**Example:**

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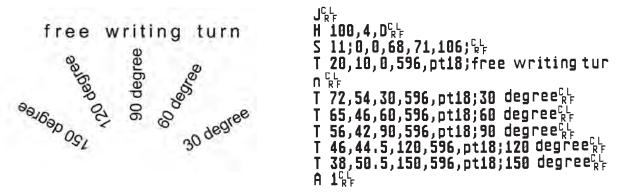


Fig. 16     Example label printed normally (left) and in `ASCII Dump Mode` (right)

## 5.8    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.

ⓘ **Notice!**

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

▶ 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.

▶ Press the **menu** button.

▶ Select `Test > Test grid` menu.

▶ Start printout with the ↵ button.
   The geometric pattern is printed every 5 seconds once the Test grid function is started. During the pauses between the printouts the printer can be adjusted.

The printout of the test grid can be cancelled with the **cancel** button.
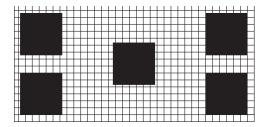


Fig. 17     Example test grid

## 5.9      Label Profile

∗    **Function not available at A2+ !**

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.

**Notice!**

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

▶ Select the label sensor to be tested in the menu `Setup > Print param.` (▷ "4.1.3" on page 16).

▶ Load the label medium to be tested into the printer.

▶ Press the **menu** button.

▶ Select `Test > Label profile` print menu.

▶ Start the function with the ↵ 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.

▶ 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.

▶ Start the diagram printout with the ↵ 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).
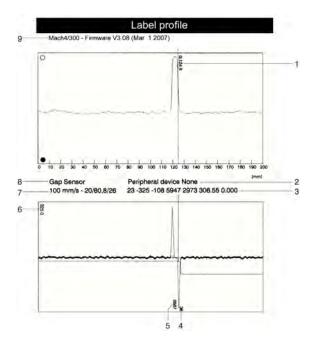


Fig. 18      Label profile

| | |
|---|---|
| **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 |

## 5.10    RFID measurement

✱      **Access only at MACH4 with RFID read-write unit 13,56 MHz !**

That function allows to check the RFID power depending on the position of RFID labels during transport. It is used to find to best read/write position.
The printout occurs using the heat level and print speed specified in the `Setup > Print param.` menu.

**ⓘ**   **Notice!**

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

▶  Select the RFID power to be used in the menu `Setup > Machine param. > RFID power`.

▶  Load the label medium to be tested into the printer.

▶  Press the **menu** button.

▶  Select `Test > RFID measurement` print menu.

▶  Start the function with the ↵ button.
The printer performs a short label advance and afterwards a number of backfeed steps. The printer measures the received signal power in every stop position. The message `OK` appears in the display once the measurement is complete.

▶  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.

▶  Start the diagram printout with the ↵ button.
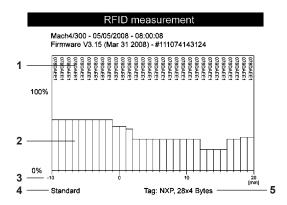


Fig. 19        RFID measurement

    **1**    ID of the tested RFID tag
    **2**    Signal power
    **3**    Distance of the measuring position relative to the printing line
          Use the position with the best reception in the command `E RFID` ▷ "Programming Manual"
    **4**    Setting of the RFID power in the printer configuration
    **5**    Manufacturer and memory size of the RFID tag

## 5.11 Event Log ⚠

* **Function not available at A2+ !**

🔑 **Access only when service key is inserted!**

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

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

▶ Insert service key into a USB master interface.

▶ 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.

▶ Press the **menu** button.

▶ Select `Test > Event log` print menu.

▶ Start printout with the ↵ button.

| Event log | |
|---|---|
| Mach4/300 - 10/09/2007 -15:49:55 | |
| Firmware V3.11 (Aug 9 2007) - #111070553751 | |
| Bootloader V1.18 (May 29 2007) | |
| Date/Time | Description |
| 23/05/2007/13:16:13 | TPH-> 12dot/mm, 1248 dots |
| 11/06/2007/07:51:24 | Firmware upd. (V3.10 Jun 27, 2007) |
| 11/06/2007/07:53:11 | Adjust gap sensor: 1/3,14/85 |
| 23/08/2007/13:40:27 | Firmware upd. (V3.11 Aug 9, 2007) |
| 23/08/2007/15:41:28 | PPP reload 3: 220907 |

Fig. 20 Event log

## 6.1      Performing Firmware Update

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

- `Firmware upd.`: Copy a firmware file from a computer connected to one of the interfaces of a label printer (▷ "6.1.1" on page 39).
- `Firmw. fr. card`: Copy a firmware file from a memory medium (▷ "6.1.2" on page 39).
- FTP firmware update via printer management (▷ "8.3" on page 46).

**Notice!**
**The firmware file can be obtained 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. Start the Windows command prompt on the PC.
7. Configure the serial interface of the PC with the mode command.
   Example : **mode com1: baud=115200 parity=n data=8 stop=1**
8. Send the firmware file (e.g. 308_7301.x2) to the printer.
   Example : **copy /b 308_7301.x2 com1:**
   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 Medium

1. Select in the menu `Setup > Interfaces > Default card slot` depending on the used memory medium `CompactFlash` or `USB Memory` (▷ "4.1.4" on page 18).
2. Format CompactFlash memory card or USB flash drive in the printer (▷ "9.6.4" on page 51).
   The directories "fonts", "images", "labels" and "misc" are created on the memory medium here.
3. Copy the firmware file to the "misc" directory of the memory medium. This can be done on a computer or via FTP on the printer.
4. Insert the prepared memory medium into the printer.
5. Press the **menu** button.
6. Select `Service > Firmw. fr. card` menu.
7. Press the ↵ button.
8. If the function `Firmw. fr. card` is protected via a PIN, use the buttons ▲, ▼, ◀ and ▶ to enter the code number and confirm with the ↵ button.
   The names of the firmware files found on the memory medium are shown in the display.
9. If several firmware files are found on the memory medium, select the desired file with the ▲ and ▼ buttons.
10. Press the ↵ 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.
11. Press the ↵ 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 19       Possible error codes with a firmware update

**Notice!**

**If an error occurs with a firmware update, the old firmware version is no longer usable.**

▶ **Restart programming.**

## 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 20       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 ↵ button.
   No appears in the display.
5. Use the ▲ and ▾ buttons to select Yes.
6. Press the ↵ button.
   The data recorded by the service counter is set to the value 0.

The status print can be used 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!**

With the `Adj. gap sensor` function label sensor can be adjusted in the see-through mode. This is necessary if sensor elements or CPU PCB has been changed.

> **Attention!**
> **Close the print module and the cover after each loading or removal of material. This is required for a successful adjustment.**

**MACH4**

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.
   The display shows `Remove labels`.
5. Remove labels and transfer ribbon from the printer.
6. Press the ↵ button.
   In the display the `Insert liner` message appears.
7. Load liner (without labels). Ensure that no labels are found on the liner near the sensor. Otherwise, the result will be faulty adjustment and device malfunction.
8. Press the ↵ button.
   The message `Ribbon, no liner` is shown.
9. Remove liner, load transfer ribbon.
10. Press the ↵ button.
    In the display the `Insert liner` message appears again.
11. Leave transfer ribbon in the printer, load liner additionally .
12. Press the ↵ button.
    `OK` appears in the display after a successful adjustment.
13. Confirm completion of the adjustment with the ↵ button.

**Other printers**

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.
   The display shows `Remove labels`.
5. Remove labels from the printer.
6. Press the ↵ button.
   In the display the `Insert liner` message appears.
7. Load liner (without labels). Ensure that no labels are found on the liner near the sensor. Otherwise, the result will be faulty adjustment and device malfunction.
8. Press the ↵ button.
   `OK` appears in the display after a successful adjustment.
9. 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 elements
- Connection cables of the label sensor
- CPU PCB

## 6.4 Save Settings 📄

∗ **Access only possible with memory medium in the default card slot!**

With the `Save settings` function the printer configuration can be saved to a memory medium (memory card, USB flash drive, Internal Flash File System) in the default card slot. 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. 20070427.XML for a file saved on 04-27-2007).

1. Insert memory medium.
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.
5. Saving of the configuration data starts. `OK` is shown in the display when the entire saving procedure is complete.
6. Press the ↵ button.
7. Do not remove the memory medium until the saving procedure is complete.

An error message appearing during the saving procedure may be caused by an unreadable medium (e.g. unknown card type, unformatted card) ▷ "9.3" on page 47.

## 6.5 Load Settings 📄

∗ **Access only possible with memory medium in the default card slot!**

A printer configuration previously saved to a memory medium (memory card, USB flash drive, Internal Flash File System) can be loaded with the `Load settings` function.

1. Insert memory medium.
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 medium, select the desired file with the ▲ and ▼ buttons.
6. Press the ↵ button.
   Loading of the configuration data starts. Do not remove the memory card until the loading procedure is complete. `OK` is shown in the display when the entire loading procedure is complete.
7. Press the ↵ button.

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, the configuration parameters must be entered via the operating panel.

## 6.6 Changing OEM Name 🔧

**Access only when service key is inserted!**

The device designation cam be changed 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 ↵ button.
   A list of available names is shown in the display.
5. Use the ▲ and ▼ buttons to select the desired OEM name.
6. Press the ↵ button.

## 6.7      Cleaning Interval 🧹

The `Cleaning interval` function is used for additional printhead maintenance control. The length of medium which passes the printhead can be selected in increments of 100 m after which the printhead is to be cleaned.

1.   Press the **menu** button.
2.   Select `Service > Cleaning interval` menu.
3.   Press the ↵ button.
4.   Select the desired value with the ◄ and ► buttons or select `Off` to deactivate the `Cleaning interval` function.
5.   Press the ↵ 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 the `Clean printhead!` message is acknowledged. 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.

PPP™ stands for „Pay-per-print". cab established for distributors a secure internet portal, which can be used to transfer data for:

- pay-per-print leasing/rental services
- online-purchase of printer features (like database connector, asian fonts)
- online-purchase of services (e.g. unlocking printer PIN)

Typically for each transaction an encrypted data packet (voucher) of the **.ppp** type is created, which can be loaded to the printer with several methods (▷ "7.2" on page 44).

When purchasing asian fonts a **.x2** file is created. To load that file into the printer use the methods of the firmware update (▷ "6.1" on page 39).

## 7.1      Short Status PPP

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

▶ Press the **menu** button.

▶ Select `Short status PPP™`.

▶ Exit the Short status PPP™ menu with the ↵ button.

## 7.2      Load PPP Voucher

### 7.2.1      Load PPP Voucher from Memory Medium

1. Connect a CompactFlash card or an USB flash drive, which was formatted in printer, to a computer.
2. Copy the PPP voucher to the "misc" directory.
3. Set the parameter `Default card slot` matching to the used memory medium (▷ "4.1.4" on page 18).
4. Insert the prepared memory medium into the printer.
5. Press the **menu** button.
6. Select `PPP™ > Load PPP voucher` menu.
7. If the function `Load PPP voucher` is protected via a PIN, use the buttons ▲, ▼, ◄ and ► to enter the code number and confirm with the ↵ button.
   A list of available voucher names is shown in the display.
8. Use the ▲ and ▼ buttons to select the desired voucher.
9. Press the ↵ button.
   `OK` appears in the display after a successful voucher loading.
   If the selected voucher was not valid the message `Error` appears.
10. Press the ↵ button.

### 7.2.2      Load PPP Voucher via Interface

1. Start the Windows command prompt on the PC.
2. Configure the serial interface of the PC with the mode command.
   Example:     **mode com1: baud=115200 parity=n data=8 stop=1**
3. Send the PPP voucher file (e.g. ppp_132062728086.ppp) to the printer
   Example:     **copy /b ppp_132062728086.ppp com1:**
4. After a successful voucher loading a ring tone can be heard.

### 7.2.3      Load PPP Voucher via FTP

To load a PPP voucher, log on with the username "root" (▷ "8.1" on page 45).

1. Copy the PPP voucher to the „execute" directory.
2. After a successful voucher loading a ring tone can be heard.

The File Transfer Protocol (FTP) allows to manage and transfer files on the network via the Ethernet interface or WLAN card. An FTP program (FTP client) is required 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 media installed in the label printer
- printer firmware update (▷ "8.3" on page 46)
- IFFS management
- direct printing via copying .LBL files

## 8.1    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 label 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 media. |
| root | printer PIN | Display, upload and download of memory medium data, FTP firmware update, loading PPP vouchers. Label files loaded on the memory media must be of the .LBL type. |

Table 21     Data for establishing an FTP connection

After logging on the FTP server is accessible in a manner similar to a Windows folder.

**Attention!**
**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.**

## 8.2　Directory Structure of the FTP Server

The files accessible via FTP are found in several folders:

| Folder name | Contents |
|---|---|
| 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. |
| system | Firmware file of the printer |
| Display of the following folders depends on the installed memory media and the defined as the default card slot: | |
| card | Data of the memory medium in the default card slot. The structure of the folder depends on the medium type. |
| cf | Data of the CompactFlash memory card in the printer if the CF card slot is not default. 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. |
| cfext | Data of the CompactFlash memory card in the external operating panel if the external card slot is not default. The files are separated into several subfolders accordingly based on their type. |
| iffs | Contents of the IFFS (Internal Flash File System). When logging on with the username "root", the contents of the IFFS can be managed. |
| pccard | Data of the PC card if the card slot is not primary. This folder does not have a substructure. |
| usbmem | Data of the USB flash drive if the USB flash drive is not default. 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. |

Table 22　　Directory structure of the FTP server

## 8.3　FTP Firmware Update

To carry out a firmware update log on with the username "root" ($\triangleright$ "8.1" on page 45).

1. Ensure that the label printer is in "Ready" mode ($\triangleright$ "Status tab" on page 21).
2. Set the "binary" transfer mode in the FTP client.
3. Open the "system" folder.
4. Copy a valid firmware file (e.g. 308_7301.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.

Whether the firmware update was carried out successfully can be checked on the "Status" tab of the printer website.

Graphics, fonts, label descriptions and database information can be saved for the long-term on memory media.

**Notice!**
▶ **Always create a backup copy of the memory card in case of a malfunction.**

## 9.1    Suitable Memory Media

**External media**

• Type 1 CompactFlash card up to a maximum size of 2 GB in the corresponding card slot of the printer or in the external operating panel (cab accessory)
• PC card (PCMCIA) in the corresponding card slot of the printer
• USB flash drive up to a maximum size of 2 GB at USB master interface

**Internal medium**

• approx. 5 MB flash memory inside the printer (Internal Flash File System)

## 9.2    Installation

∗ **For external memory media only!**

1. Slide memory card contact-side first into the matching slot as far as it will go.
   The rear section of the inserted memory card still extends from the device housing so that it can be removed by hand.
      or
   Connect USB flash drive to an USB master interface.

**Notice!**
**When the memory cards are slid onto the contact pins, light physical resistance can be felt.**

1. Press the menu button.
2. 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:
• the card slot being used is not selected as the default card slot
• the memory card is not inserted far enough into the card slot
• the memory card is entered incorrectly

**! Attention!**
**Do not remove a memory medium while it is being accessed. You can configure the printer so that access to a memory medium is indicated on the status line (▷ "4.1.5" on page 19).**

## 9.3    Formatting

∗ **For CompactFlash cards and PC cards only!**

If the memory medium has not been pre-formatted in a suitable way, it can be  formatted it in the following manners:
• Formatting in the printer via the `Format card` menu item (▷ "9.6.4" on page 51).
• Formatting in the printer via the interface with the Mf;name CR command (▷ "Programming Manual").

## 9.4      Directory Structure

On CompactFlash cards some folders are created during formatting.

On USB flash drives connected to the printer, the same directory structure is automatically generated when uploading files to the flash drive :

| Folder name | Contents |
|---|---|
| fonts | Font files |
| images | Graphic files |
| labels | Label description files |
| misc | Firmware, PPP, Setup and TMP files |

Table 23      Directory structure of CompactFlash cards and USB flash drives

ℹ **Notice!**
**PC cards have no folders!**

## 9.5      Writing

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

⚠ **Attention!**
**The medium in the default card slot is written to by default. To write to a medium in another slot specify the path name of the slot in the file name (▷ "Programming Manual").**

**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 l1;0,0,68,71,104               |  Contents of the file ABC
T 10,10,0,3,pt15;memory card     |
A 1[NOPRINT]                     |
Ms LBL                           End of save command
```

• After transfer of the command sequence, the file ABC is saved with the commands from J to A.
• Only one label is printed each time the file ABC is called up.
• The [NOPRINT] parameter in command A suppresses the printing of a label when the file is saved.
• To print the label a variable number of times, put command A after the ending Ms command.

## 9.6     Memory Media Functions in the Offline Menu

Accessing the `Memory card` menu is only possible if a memory medium is installed in the default card slot.

Only the medium in the default slot ($\triangleright$ "4.1.4" on page 18) can be operated via the operating panel. When operating via an interface, each card slot can be addressed via a path.

### 9.6.1    Label from Card

Labels whose descriptions are saved on the memory medium can be printed using the `Label from card` function.

1.  Select the `Label from card` function in the `Memory card` menu.
2.  Press the ↵ button.
    The name of the label found at the top of the index of the memory medium is displayed.
3.  Select the desired label in the index of the medium with the ▲ and ▼ buttons.
4.  Press the ↵ button.
    If a label is selected which was saved with a fixed label quantity, the print job is started immediately.
    For label descriptions with a variable label quantity, a request to enter the label quantity is displayed.
    If additional input on the label description is required, the display requests to enter the variable data .
5.  Enter the label quantity/variable data with the following buttons:
    - ◄     cursor left
    - ▶     cursor right
    - ▲     increase value at cursor position by 1 or select next letter in alphabet
    - ▼     decrease value at cursor position by 1 or select previous letter in alphabet
6.  Press the ↵ button briefly to confirm the input and start the print job.

**Canceling input:**

▶  Press and hold the ↵ button at least 2 seconds.

### 9.6.2    Print Directory

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 medium
- information on the saved files
- the size of the available memory area

### 9.6.3    Copy Memory Card 📑

✻    **For external memory media only!**

All the data from one memory medium can be copied to another one of the same type with the `Copy memory card` function.  Copying between memory media with different memory capacities is possible. You can also use memory media which already contain data as a destination medium.

> **Attention!**
> **Data loss when copying.**
> **If files with the same name are found on the original and copy media, the files on the copy medium are overwritten without any prior notification. In addition, removal of the memory medium during the copying procedure leads to data loss.**
> ▶ **Check files for the same name before copying.**
> ▶ **Only remove or insert memory media when so instructed in the display.**

Unauthorized copying of memory media can be prevented by using a PIN (▷ "4.1.6" on page 20).

1.  Insert original medium.
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 buttons ▲, ▼, ◀ and ▶ 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 medium and insert the medium to be written to.
    The data read from the original medium is transferred to the copy medium. The progress indicator in the display shrinks during this process. If only part of the data from the original medium was read out, the `Insert source` instruction appears.
9.  Remove copy medium and insert original medium 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 medium to be written to can no longer accept data during the copying procedure, the `Card full` error message appears in the display.

## 9.6.4    Format Card

∗     **For external memory media only!**

The `Format card` function can be used to delete all data from a memory medium. This reformats the memory medium. This is why you can also use the `Format card` function if the `Unknown card` or `Structural err.` error message was output when using the medium.

Unauthorized deleting of memory medium can be prevented by using a PIN (▷ "4.1.6" on page 20).

1. Insert memory medium (▷ "9.2" on page 47).
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 medium from the printer during the deleting procedure.
   The memory volume of the medium is shown in the display as soon as the deleting procedure is complete.
9. Press any button.

## 9.6.5    ASCII Dump (Card)

The label files found on a memory medium consist of a sequence of printer commands. These command sequences can be printed in the form of text 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 memory medium (▷ "9.2" on page 47).
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 medium is shown in the display.
7. Select the desired label file in the index of the medium 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.

The printout of the label description can be cancelled with the **cancel** button.

An external keyboard or a compatible input device (e.g. barcode scanner) can be connected directly to the printer. Using an external keyboard facilitates the entry of variable data while processing print jobs and printing from memory media.

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

## 10.1 Connecting External Keyboard

Any MF-2-compatible USB keyboard which supports code set 3 can be connected to the printer.

▶ Insert connection cable of the keyboard into a USB master interface on the back of the printer.

## 10.2 Special Key Functions

**General :**

| [F1] | Executes the `Label from card` memory media function. |
|---|---|
| [F2] | Prints an additional label from the last print job. Corresponds to the command **A 1 CR**. |
| [F3] | Repeats the last print job with renewed polling of the variable data and polling of the label quantity. |
| [F8] | Functions in the same manner as **feed**. |
| [Enter] | Switches to the offline menu. Functions in the same manner as **menu**. |
| [Esc] | Functions in the same manner as **cancel**. |
| [Space] | Functions in the same manner as **pause**. 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 `Ready` 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

## 10.3 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 (▷ "Interfaces" on page 18).

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 the [Alt] key must be pressed 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.

> **⚠ Attention!**
> **When using a scanner ensure that the same character set is set for both the scanner and the printer.**

**Country-specific special characters:**

▶ Enter the following country-specific special characters with the [Alt] key pressed.

| Character | [Alt] + Key | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| € | E | E | E | E | E | E | E | E | E | E | E | E |
| { | 7 | ' | | | ä | à | ç | 7 | 8 | ´ | 7 | B |
| } | 0 | = | | | $ | $ | à | 0 | 9 | ç | 0 | N |
| [ | 8 | ( | | | ü | è | ^ | 8 | è | ` | 8 | F |
| ] | 9 | ) | | | ¨ | ¨ | $ | 9 | + | + | 9 | G |
| \ | ß | _ | | | < | < | < | + | | ° | < | Q |
| \| | < | - | ` | | 1 | 1 | & | < | | 1 | ´ | W |
| ' | | | | | | | | | \ | 0 | | |
| ´ | | | ' | ` | ' | ' | ù | | | | | í |
| ` | | è | | | | | µ | | ´ | | | ý |
| ^ | | ç | | | | | § | | | | | š |
| ˘ | ^ | ^ | 6 | 6 | § | § | ² | § | Ì | < | ½ | ; |
| ¨ | | . | | . | . | | | | . | | | = |
| ~ | + | é | | | ^ | ^ | = | ¨ | ù | 4 | ¨ | + |
| ° | | | 0 | 0 | | | | ´ | 0 | 0 | | ř |
| ² | 2 | | | | | | | | 2 | | | |
| 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 | | |
| ÷ | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| | \|/\| |
| × | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| | \|*\| |
| | GR | FR | UK | US | SG | SF | BE | SU | IT | SP | DK | CZ |

| Character | [Alt] + Key |
|---|---|
| ˘ | č |
| ¸ | ž |
| ˙ | á |
| ˝ | é |
| ¸ | ´ |
| ÷ | ú |
| × | ) |
| đ | S |
| Đ | D |
| ł | K |
| Ł | L |
| ß | § |
| & | C |
| < | , |
| > | . |
| * | - |
| | 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: | Belgie | DK: | Danmark |
| US: | USA | SU: | Suomi | CZ: | Česka republika |

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

**Other special characters:**

▶ To enter a special character in the ZZ column first enter the corresponding character in the Z1 column and then enter 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 | Ò | ` | O | å | ° | a | ò | ` | o |
| Á | ´ | A | Ó | ´ | O | æ | a | e | ó | ´ | o |
| Â | ^ | A | Ô | ^ | O | ª | _ | a | ô | ^ | o |
| Ã | ~ | A | Õ | ~ | O | ç | , | c | õ | ~ | o |
| Ä | ¨ | A | Ö | ¨ | O | ¢ | \| | c | ö | ¨ | o |
| Å | ° | A | Ø | / | O | č | ˇ | c | ø | / | o |
| Æ | A | E | Œ | O | E | ď | ' | d | œ | o | e |
| Ç | , | C | Ř | ˇ | R | è | ` | e | º | _ | o |
| Č | ˇ | C | Š | ˇ | S | é | ´ | e | ŕ | ´ | r |
| D' | ' | D | Ù | ` | 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 | ť | ' | t |
| Ë | ¨ | E | Ý | ´ | Y | í | ´ | i | ù | ` | u |
| Ì | ` | I | ¥ | - | 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 | ľ | ' | l | ů | ° | u |
| IJ | 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: **[~]**   2. entry: **[Alt]** + **[n]**

**Notice!**

▶ **If necessary, use the information in Table 25 on page 53 to enter the character Z1.**