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PREFACE

The *EasyCoder 501* printer family comprises a number of modular thermal transfer/direct thermal printers.

The *EasyCoder 501* printers are manufactured in three main models, all of which can be delivered either with or without a thermal transfer ribbon mechanism and with two different print-head densities. Particulars of the main models are given on the pages to follow.

This *Technical Manual* is intended to facilitate installation and setup. It also gives information on labels, tickets, tags, paper strip and thermal transfer ribbons. Compared to edition 6, this edition includes information on new versions of the CPU board, the *UBI Fingerprint* firmware, and the centreline gable. This manual is presently supplemented by the following publications:

- **EasyCoder 501, Operator's Guide**
  Illustrated step-by-step instructions for paper and ribbon load as well as daily maintenance. Multilingual.

- **EasyCoder 501, User's Manuals**
  Gives information on how to run and maintain the printer, how to load paper supply, and – in case thermal transfer printers – how to load the transfer ribbon.

- **UBI Shell Standard and UBI Shell Enhanced, Startup Manuals**
  Gives information on how to run the *UBI Shell* startup program in *EasyCoder 501* and *EasyCoder 501 E* respectively.

- **EasyCoder 501, Service Manual**
  Gives information on troubleshooting, adjustments and repair of the various *EasyCoder 501* printer models.

- **EasyCoder 501, Spare Parts & Options**
  Illustrates the various spare parts and field-installable options.

- **UBI Direct Protocol, Programmer's Guide**
  Introduction to the *UBI Direct Protocol*, an easy-to-use "slave" protocol for computer connection.

- **UBI Fingerprint, Programmer's Guide**
  Introduction to the *UBI Fingerprint* programming language.

- **UBI Fingerprint, Reference Manual**
  Contains information on the instructions and other features in the *UBI Fingerprint* programming language.

- **UBI Stand-Alone Concept, Operating Instructions**
  Provides information on the stand-alone software for the *EasyCoder 501 SA* printer.

- **UBI LabelShop, various manuals**
  Information on how to use the *UBI LabelShop* WYSIWYG label-editing program for *Microsoft Windows*.

- **UBI Windows Driver, Installation Instruction**
  Information on how to install and use the *UBI Windows Driver*.

- **UBI Macintosh Driver, Installation Instruction**
  Information on how to install and use the *UBI Macintosh Driver*.

MODELS   EasyCoder 501
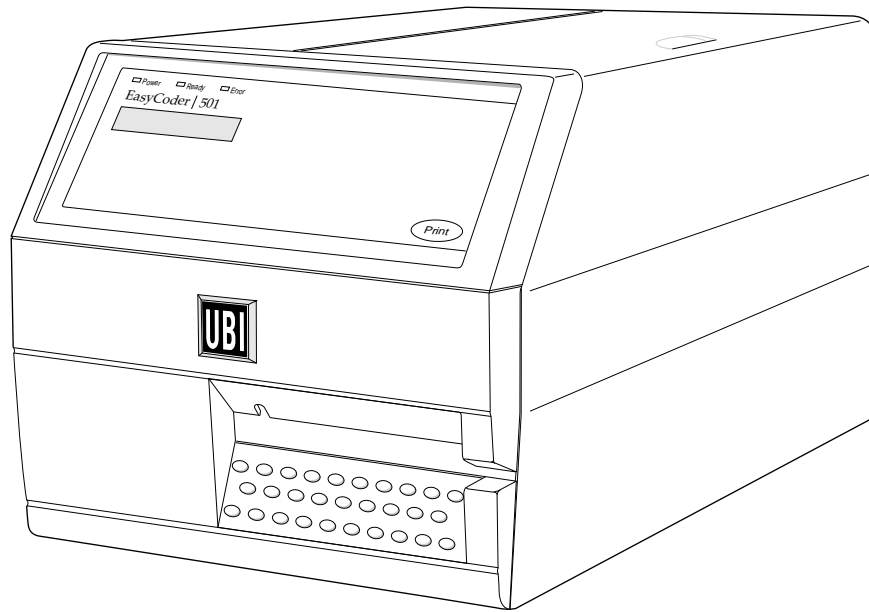
The *EasyCoder 501* is a rugged, medium performance multipurpose printer for computer connection. It is available with either 8 dots/mm or 11.81 dots/mm printhead density. *EasyCoder 501* is fitted with the *UBI Fingerprint* firmware, which is compatible with the *UBI LabelShop* label-editing program, the *UBI Windows Driver* (optional parallel interface board required), the *UBI Macintosh Driver* and the *UBI Direct Protocol*. The flexible *UBI Fingerprint* programming language also allows you to create your own programs.

As an option, the *EasyCoder 501* can be fitted with a special firmware package that allows scalable outline fonts in *TrueType* and *Speedo* formats to be used. In addition to the selection of *Speedo* fonts included in the package, an ever increasing number of standard outline fonts from major distributors becomes available and can be downloaded from a PC, directly or via a memory card.

With the introduction of *UBI Fingerprint 6.1*, the *EasyCoder 501* can optionally be fitted with a paper cutter.

The *EasyPak 501* is a ready-to-use package containing an 8 dots/mm *EasyCoder 501* printer fitted with a Centronics interface, a memory card adapter and all cables and firmware required to connect it to a personal computer fitted with *Microsoft Windows*. The *UBI Windows Driver* makes this model an ideal label printer for a large number of programs run under *Windows,* and the *UBI LabelShop* label-editing program allows you to create your own labels, while you have full control of the final result on your computer screen.

MODELS, cont'd.   EasyCoder 501

Feature	EasyCoder 501	Common Features	EasyPak 501
Print Technique		Direct Thermal & Thermal Transfer[1]	
Quick-Mount Printhead	8 or 11.81 dots/mm (203.2 or 300 dpi)		8 dots/mm (203.2 dpi)
Print Width (8 or 11.81 dots/mm respectively)	max. 104 mm (4.09") or 108.3 (4.26")		max. 104 mm (4.09")
Media Width		max. 120 mm (4.7")	
Print Length (8 or 11.81 dots/mm respectively)	max. 1250 mm (49.2") or 833 mm (32.8")		max. 1250 mm (49.2")
Print Speed		max. 75–100 mm/sec. (3–4"/sec.)	
Fonts, expandible 4 times		Min. 1 Bitmapped; Standard: 10 Bitmapped[5]	
Smooth Fonts		Yes, with UBI Toolbox or Scalable Fonts Kit	
Print Directions for Text, Images, Lines, and Boxes		4	
Bar Code Generators (standard)		Depends on firmware[5]	
Internal Paper Roll Diameter		max. 205 mm (8.0")	
Ribbon Length		450 m (1476 ft.)	
Keyboard, built-in		Print key only	
Display		2 lines x 16 characters LCD	
Dimensions (W x D x H)		275 x 480 x 239 mm (10.8 x 18.9 x 9.4")	
Weight (excl. paper, ribbon and options)		15.0 kgs (33 lbs)	
Ambient Operating Temperature		+ 5°C – +40°C (+41°F – +104°F)	
Humidity		20–80% non-condensing	
Sound Emission Level		< 60 dB (A)	
Microprocessor		32 bit	
Firmware		UBI Fingerprint 6.1 incl. UBI Direct Protocol	
Startup Program	UBI Shell Standard		EasyPak Startup
On-Board RAM Memory, standard	Std: 512 kbytes; Max. 2 Mbytes[2]		256 kbytes
Label and Ribbon End Sensors		Standard	
Mains Voltage (switch change-over)		115/230 VAC (+10%/-15%), 2.6/1.3 A, 60/50 Hz	
Max. Power Consumption		300 W	
Communication Interface, standard		RS 232C. Prepared for RS 422/20 mA Current Loop	
1 x Centronics Interface[2]	Optional		Yes
Memory Card Adapter[2]	Optional		Yes
RS 232C Cable[3]	Optional		Yes
Centronics Cable[3]	Optional		Yes
Paper Cutter[2,6]	Optional		Not included
External RS 232C Alphanumeric keyboard[3]	Optional		Not included
Peel-Off Device[4]	Optional		Not included
Internal Rewind of Backing Paper and Labels[4]	Optional		Not included
Quick-Load Ribbon Cassette[3]	Optional		Not included
Label Roll Retainer[2]	Optional		Not included
Guides for External Fan-Fold Paper Supply[3]	Optional		Not included
Clear Door Panel, for view of label roll[2]	Optional		Not included
Scalable Fonts Kit[2] (for scaling Speedo and TrueType outline fonts)	Optional		Not included
UBI Toolbox, PC Windows configuration support[3]	Optional		Not included
UBI LabelShop, WYSIWYG Label Software for Windows[3]	Optional		Yes
UBI Windows Driver[3] (excl. cable)	Optional		Yes
UBI Macintosh Driver[3] (incl. cable)	Optional		Not included

[1]/. *Direct thermal configuration only is available as factory-installed option.*
[2]/. *Available as factory installed option or field-installable kit.*
[3]/. *Field-installable option only.*
[4]/. *Factory-installed option only. Must be requested at time of order.*
[5]/. *See UBI Fingerprint manuals*
[6]/. *Requires UBI Fingerprint 6.1 or later*

MODELS, cont'd.   EasyCoder 501 E
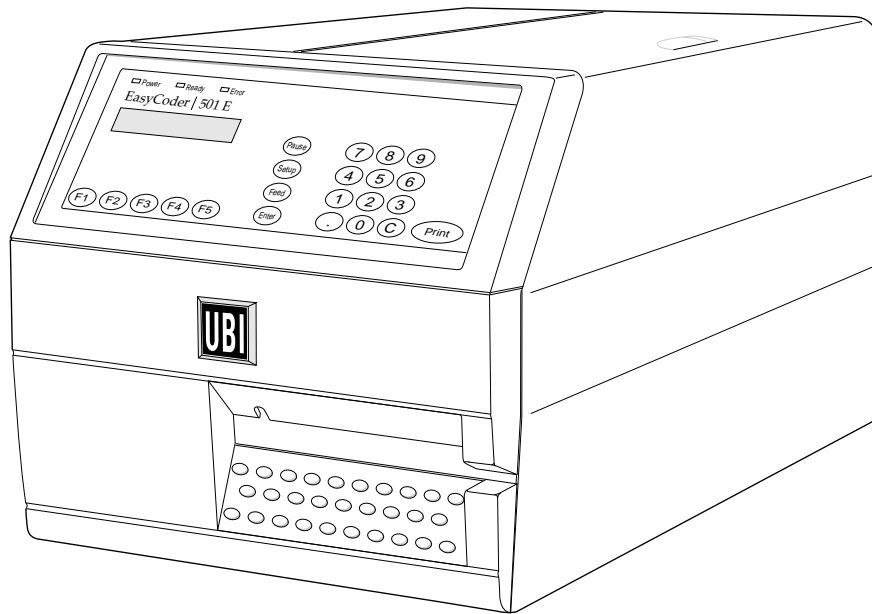
The *EasyCoder 501 E (Enhanced)* is a high performance multipurpose printer, primarily intended for computer connection. It is available with either 8 dots/mm or 11.81 dots/mm printhead density. The large number of options and the programmable keyboard makes it suitable for a variety of tasks, from heavy-duty industrial labelling to office applications and ticketing. *EasyCoder 501 E* is fitted with the *UBI Fingerprint* firmware, which is compatible with the *UBI LabelShop* label-editing program, the *UBI Windows Driver* (optional parallel interface board required), the *UBI Macintosh Driver* and the *UBI Direct Protocol*. The flexible *UBI Fingerprint* programming language also allows you to create your own programs.

As an option, the *EasyCoder 501 E* can be fitted with a special firmware package that allows scalable outline fonts in *TrueType* and *Speedo* formats to be used. In addition to the selection of *Speedo* fonts included in the package, an ever increasing number of standard outline fonts from major distributors becomes available and can be down-loaded from a PC, directly or via a memory card.

The *EasyPak 501 E* is a ready-to-use package containing an 8 dots/mm *EasyCoder 501 E* printer fitted with a Centronics interface, a memory card adapter and all cables and firmware required to connect it to a personal computer fitted with *Microsoft Windows*. The *UBI Windows Driver* makes this model an ideal label printer for a large number of programs run under *Windows,* and the *UBI LabelShop* label-editing program allows you to create your own labels, while you have full control of the final result on your computer screen.

MODELS, cont'd.   EasyCoder 501 E

Feature	EasyCoder 501 E	Common Features	EasyPak 501 E
Print Technique		Direct Thermal & Thermal Transfer[1]	
Quick-Mount Printhead	8 or 11.81 dots/mm (203.2 or 300 dpi)		8 dots/mm (203.2 dpi)
Print Width (8 or 11.81 dots/mm respectively)	max. 104 mm (4.09") or 108.3 (4.26")		max. 104 mm (4.09")
Media Width		max. 120 mm (4.7")	
Print Length (8 or 11.81 dots/mm respectively)	max. 1250 mm (49.2") or 833 mm (32.8")		max. 1250 mm (49.2")
Print Speed		max. 100–200 mm/sec. (4–8"/sec.)	
Fonts, expandible 4 times		Min. 1 Bitmapped; Standard: 10 Bitmapped[6]	
Smooth Fonts		Yes, with UBI Toolbox or Scalable Fonts Kit	
Print Directions for Text, Images, Lines, and Boxes		4	
Bar Code Generators (standard)		Depends on firmware[6]	
Internal Paper Roll Diameter		max. 205 mm (8.0")	
Ribbon Length		450 m (1476 ft.)	
High Speed Label Controller (Label Slack Absorber)		Standard	
Keyboard, built-in		22 keys (programmable)	
Display		2 lines x 16 characters LCD	
Dimensions (W x D x H)		275 x 480 x 239 mm (10.8 x 18.9 x 9.4")	
Weight (excl. paper, ribbon and options)		15.0 kgs (33 lbs)	
Ambient Operating Temperature		+ 5˚C – +40˚C (+41˚F – +104˚F)	
Humidity		20–80% non-condensing	
Sound Emission Level		< 60 dB (A)	
Microprocessor		32 bit	
Firmware		UBI Fingerprint 6.1 incl. UBI Direct Protocol	
Startup Program	UBI Shell Enhanced		EasyPak Startup
On-Board RAM Memory, standard	Std: 512 kbytes; Max. 2 Mbytes[2]		512 kbytes
Label and Ribbon End Sensors		Standard	
Mains Voltage (switch change-over)		115/230 VAC (+10%/-15%), 2.6/1.3 A, 60/50 Hz	
Max. Power Consumption		300 W	
Communication Interface, standard		RS 232C. Prepared for RS 422/20 mA Current Loop	
1 x Centronics Interface[2,5]	Optional		Yes
1 x RS 232C + 1 x RS 232C/20 mA CLInterface[2,5]	Optional		Not included
1 x RS 232C + 1 x RS 422/RS 485Interface[2,5]	Optional		Not included
1 x RS 232C + 1 x 4 IN/OUT portsInterface[2,5]	Optional		Not included
Label Taken Sensor (LTS)[4]	Optional		Not included
Real Time Clock (RTC)[2]	Optional		Not included
Memory Card Adapter[2]	Optional		Yes
RS 232C Cable[3]	Optional		Yes
Centronics Cable[3]	Optional		Yes
External RS 232C Alphanumeric keyboard[4]	Optional		Not included
Peel-Off Device[4]	Optional		Yes
Internal Rewind of Backing Paper and Labels[4]	Optional		Yes
Label and Ribbon Low Sensors[4]	Optional		Not included
Paper Cutter[2]	Optional		Not included
Ribbon Save Device[4]	Optional		Not included
Quick-Load Ribbon Cassette[2]	Optional		Not included
Label Roll Retainer[2]	Optional		Not included
Guides for External Fan-Fold Paper Supply[2]	Optional		Not included
Clear Door Panel, for view of label roll[2]	Optional		Not included
Scalable Fonts Kit (for scaling Speedo and TrueType outline fonts)	Optional		Not included
UBI Toolbox, PC Windows configuration support[2]	Optional		Not included
UBI LabelShop, WYSIWYG Label Software for Windows[3]	Optional		Yes
UBI Windows Driver[3] (excl. cable)	Optional		Yes
UBI Macintosh Driver 3 (incl. cable)	Optional		Not included

[1]. Direct thermal configuration only is available as factory-installed option. [4]. Factory-installed option only. Must be requested at time of order.
[2]. Available as factory installed option or field-installable kit.   [5]. Only one interface board can be fitted.
[3]. Field-installable option only.   [6]. See UBI Fingerprint manuals

MODELS, cont'd.   EasyCoder 501 SA
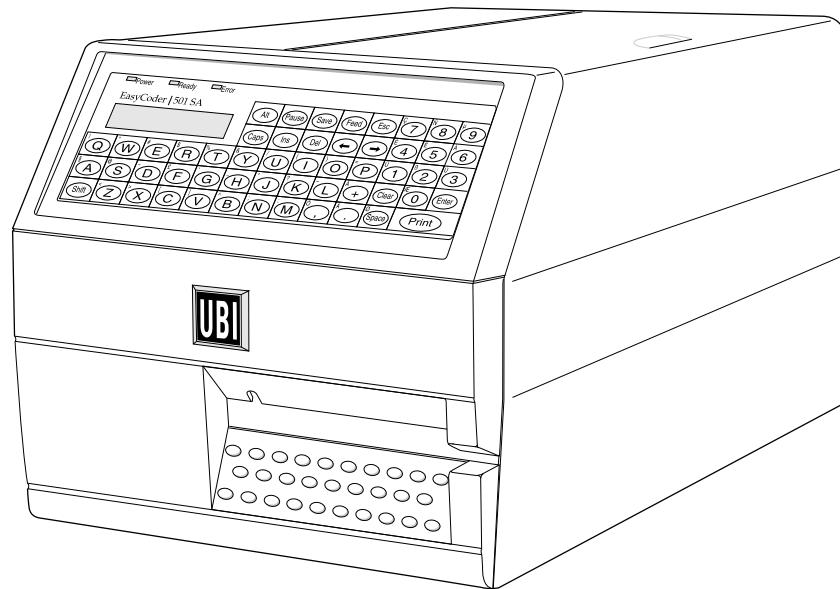
The *EasyCoder 501 SA (Stand-Alone)* printer is intended for applications, where the printer must be able to operate without being connected to a computer. The operator can enter variable information into preprogrammed label layouts and control the printing from the printer's own keyboard. Thus, this printer is fitted with special firmware in its configuration EPROM's and an expanded RAM memory. The printer can be temporarily or permanently connected to a PC for up- or downloading of label texts and formats. The printer is available with either 8 dots/mm or 11.81 dots/mm printhead density. Externally, this model is distinguished by its large alphanumeric, full ASCII keyboard. The firmware is described in a separate manual.

The *EasyPak 501 SA* is a ready-to-use package containing an 8 dots/mm *EasyCoder 501 SA* printer fitted with a label-taken sensor, a memory card adapter, a real-time clock, and devices for label peel off and rewinding of labels and backing paper. The package also contains the *UBI LabelShop* label-editing program for *Microsoft Windows* and a connection cable. Plug the printer to a PC, create and download the label formats and texts you need, and unplug it. Then you can move the printer anywhere you like, provided there is a mains supply.

MODELS, cont'd.   EasyCoder 501 SA

Feature	EasyCoder 501 SA	Common Features	EasyPak 501 SA
Print Technique		Direct Thermal & Thermal Transfer[1]	
Quick-Mount Printhead	8 or 11.81 dots/mm (203.2 or 300 dpi)		8 dots/mm (203.2 dpi)
Print Width (8 or 11.81 dots/mm respectively)	max. 104 mm (4.09") or 108.3 (4.26")		max. 104 mm (4.09")
Media Width		max. 120 mm (4.7")	
Print Length (8 or 11.81 dots/mm respectively)	max. 1250 mm (49.2") or 833 mm (32.8")		max. 1250 mm (49.2")
Print Speed		max. 100–200 mm/sec. (4–8"/sec.)	
High Speed Label Controller (Label Slack Absorber)		Standard	
Fonts, expandable 4 times		10 Bitmapped[6]	
Smooth Fonts		Yes, with UBI Toolbox	
Print Directions for Text, Images, Lines, and Boxes		4	
Bar Code Generators		10[6]	
Internal Paper Roll Diameter		max. 205 mm (8.0")	
Ribbon Length		450 m (1476 ft.)	
Keyboard, built-in		Full ASCII QWERTY keyboard with additional control keys	
Display		2 lines x 16 characters LCD	
Dimensions (W x D x H)		275 x 480 x 239 mm (10.8 x 18.9 x 9.4")	
Weight (excl. paper, ribbon and options)		15.0 kgs (33 lbs)	
Ambient Operating Temperature		+ 5°C – +40°C (+41°F – +104°F)	
Humidity		20–80% non-condensing	
Sound Emission Level		< 60 dB (A)	
Microprocessor		32 bit	
Firmware		UBI Fingerprint 6.1 (incl. UBI Direct Protocol)	
Startup Program		UBI Stand-Alone Concept	
On-Board RAM Memory, standard	Std: 512 kbytes; Max. 2 Mbytes[2]		512 kbytes
Label and Ribbon End Sensors		Standard	
Real Time Clock (RTC)		Standard	
Mains Voltage (switch change-over)		115/230 VAC (+10%/-15%), 2.6/1.3 A, 60/50 Hz	
Max. Power Consumption		300 W	
Communication Interface, standard		RS 232C. Prepared for RS 422/20 mA Current Loop	
1 x Centronics Interface[2,5]	Optional		Not included
1 x RS 232C + 1 x RS 232C/20 mA CL Interface[2,5]	Optional		Not included
1 x RS 232C + 1 x RS 422/RS 485 Interface[2,5]	Optional		Not included
1 x RS 232C + 1 x 4 IN/OUT ports Interface[2,5]	Optional		Not included
Label Taken Sensor (LTS)[2]	Optional		Yes
Memory Card Adapter[2]	Optional		Yes
RS 232C Cable[3]	Optional		Yes
Centronics Cable[3]	Optional		Not included
External RS 232C Alphanumeric keyboard[3]	Optional		Not included
Peel-Off Device[4]	Optional		Yes
Internal Rewind of Backing Paper and Labels[4]	Optional		Yes
Label and Ribbon Low Sensors[4]	Optional		Not included
Cutter Unit[2]	Optional		Not included
Ribbon Save Device[4]	Optional		Not included
Quick-Load Ribbon Cassette[3]	Optional		Not included
Label Roll Retainer[2]	Optional		Not included
Guides for External Fan-Fold Paper Supply[3]	Optional		Not included
Clear Door Panel, for view of label roll[2]	Optional		Not included
UBI Toolbox, PC Windows configuration support[3]	Optional		Not included
UBI LabelShop, WYSIWYG Label Software for Windows[3]	Optional		Yes
UBI Windows Driver[3] (excl. cable)	Optional		Not included

[1]/. Direct thermal configuration only is available as factory-installed option.   *[4]/. Factory-installed option only. Must be requested at time of order.*

[2]/. Available as factory installed option or field-installable kit.   *[5]/. Only one interface board can be fitted.*

[3]/. Field-installable option only.   *[6]/. See UBI Stand-Alone Concept; Operating Instructions*

INSTALLATION

Installation Check List

❏ Unpack the printer as described on next page.

❏ **EasyPak:**
If you have an *EasyPak 501*, *EasyPak 501 E,* or *EasyPak 501 SA* package, follow the instructions in the enclosed *"UBI EasyPak – Getting Started"* booklet.

Standard EasyCoder printer:
If you have a standard *EasyCoder 501, EasyCoder 501 E,* or *EasyCoder 501 SA* printer, go on to next step.

Customized EasyCoder printer:
If you have a customized *EasyCoder 501, EasyCoder 501 E,* or *EasyCoder 501 SA* printer, check its CPU board and possible optional interface board in regard of interface circuits and straps as described in the chapters *"Electronics"* and *"Interfaces"* at the end of this manual. Then go on to next step.

❏ Connect the printer to a mains socket as described later on in this chapter.

❏ Connect the printer to its host computer by means of a suitable communication cable as described later in this chapter. (Refer to the chapter *"Interfaces"* for more information on computer connection and cable configurations). This step is not necessary for *EasyCoder 501 SA*.

❏ Load a supply of paper and thermal transfer ribbon, or thermal paper only, as described in the *Operator's Guide* and the *User's Manual*. Be careful to adjust the position of the label stop sensor so it will detect the front edge of the labels, tickets or tags, or optionally the black marks at the back of the paper web.

❏ If you want to use a memory card, insert it into the optional memory card adapter (see chapter *"Memory Card Adapter"*).

❏ Check that the printhead is lowered.

❏ If the printer is fitted with an optional paper cutter, check that the cutter unit is locked in closed position.

❏ Turn on the power.

❏ Depending on the printer's software, proceed according to one of the five alternatives described in the chapter *"Starting Up"*.

INSTALLATION, cont'd.

Unpacking

Before starting the installation, carefully examine the delivery for possible damage or missing parts:

❑ Open the box and lift the printer, together with the foam-plastic shock absorbers, out of the box.

❑ Remove the shock absorbers and check that the machine has not been visibly damaged during the transportation. Keep the packing material until you are sure that the printer functions properly.

❑ The machine sign on the printer's rear plate gives information on:
  • Type
  • Article number
  • Serial number
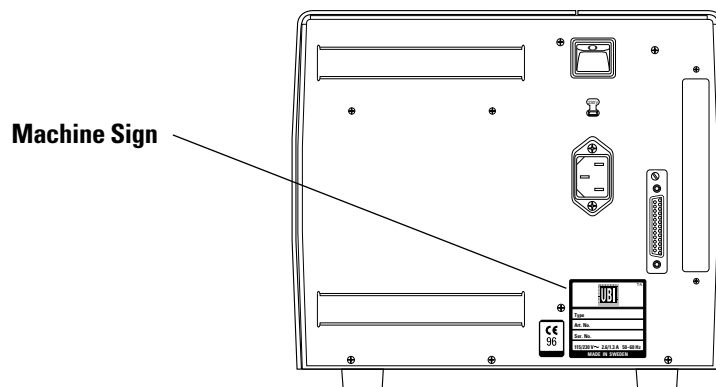
❑ Check the printer in regard to possible options ordered.

❑ Check that the mains cord has a pin configuration that will fit into a wall socket according to the local standard.
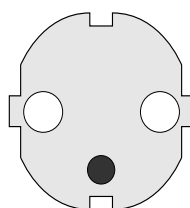
European type
230V mains plug
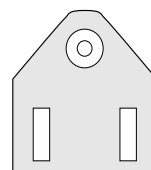
US/Canadian type
115V mains plug
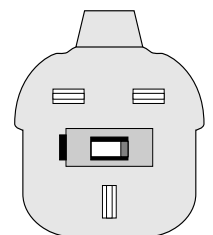
GB type
230V mains plug

Should any kind of damage have occurred during transportation, immediately make a complaint to the carrier.

Any incorrect delivery or missing parts should be reported to the distributor.

INSTALLATION, cont'd.

Mains Connection

❏ Make sure that the printer is set for the correct voltage by checking the voltage switch on the printer's rear plate.

❏ Fit the mains cord, which is included in the delivery, into the mains receptacle. Connect the other end of the cord to a grounded wall socket. To avoid interference from noise, surges and spikes, a dedicated line is preferred. If no such line is available, avoid lines to which electric motors, refrigerators and similar devices are connected.

❏ The power can be turned on/off by means of the main switch situated above the mains receptacle. The "Power" LED on the printer's keyboard indicates when the power is on.

Power LED

Mains Receptacle

Voltage Switch

Main Switch
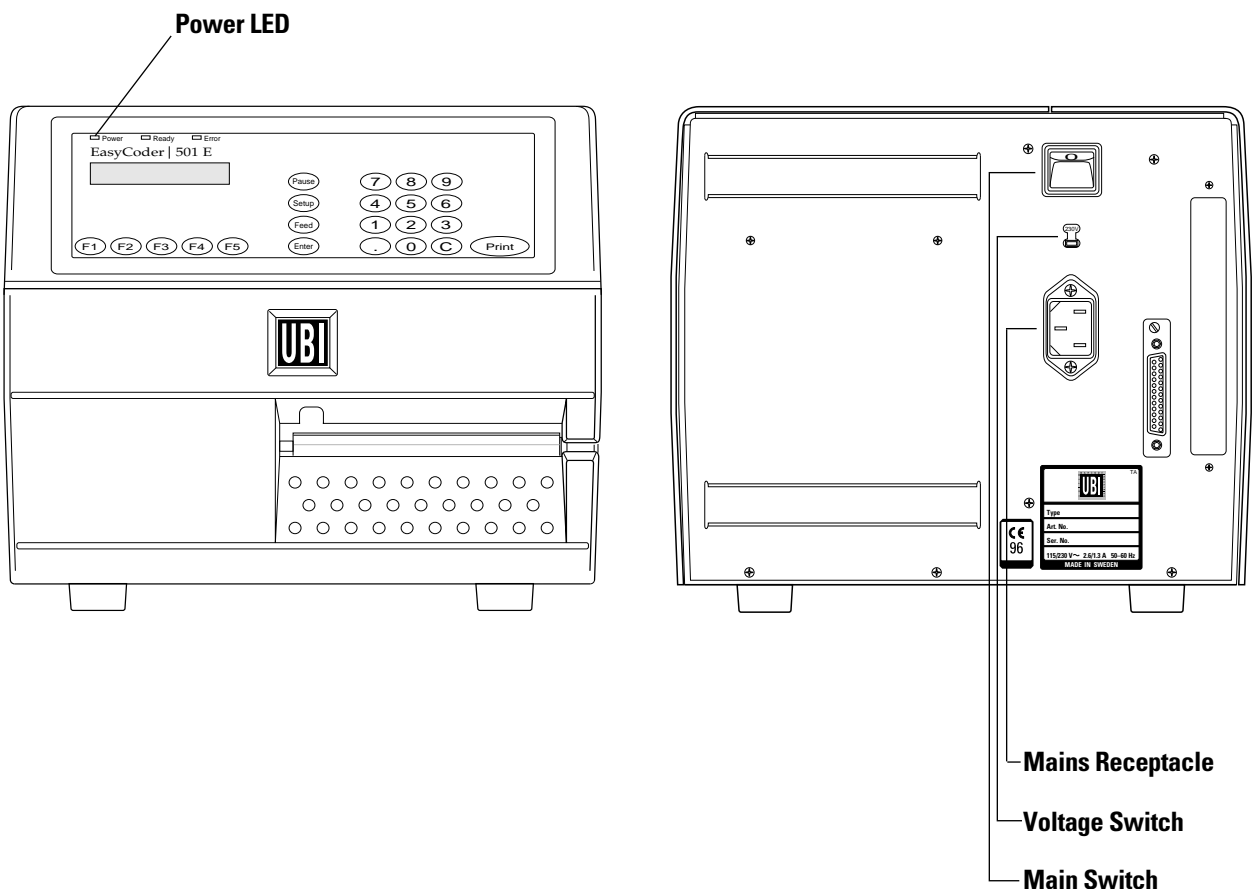
INSTALLATION, cont'd.

Computer Connection

As standard, all *EasyCoder 501* printer models are fitted with one communication port for RS 232C on their rear plates. Optionally, this communication port can be reconfigured for either RS 422 or 20 mA Current Loop after additional circuits have been fitted on the CPU board, see chapter *"Interfaces"*.

EasyPak 501 and *EasyPak 501 E* printers also have a parallel Centronics communication port.

EasyCoder 501 SA and *EasyPak 501 SA* printers do not **have** to be connected to a computer, even if the *EasyPak 501 SA* is prepared for connection to a PC in order to use the *UBI LabelShop* program for label editing.

If there are other communication ports, or if you have ordered a non-standard printer, refer to the chapter *"Interfaces"* for information on how to connect the printer.

With the exception of *EasyPak* kits and the *UBI Macintosh Driver*, no communication cable is provided unless ordered separately. Refer to the chapter *"Interfaces"* for cable configuration descriptions.

Refer to the manual of the host computer or terminal for information on how to connect the other end of the communication cable.

WARNING!
When connecting printer and host, the power should be off!

**Parallel Port
36-p female Centronics
(EasyPak 501 & 501 E)**

**Serial RS 232C Port
DB25 male**
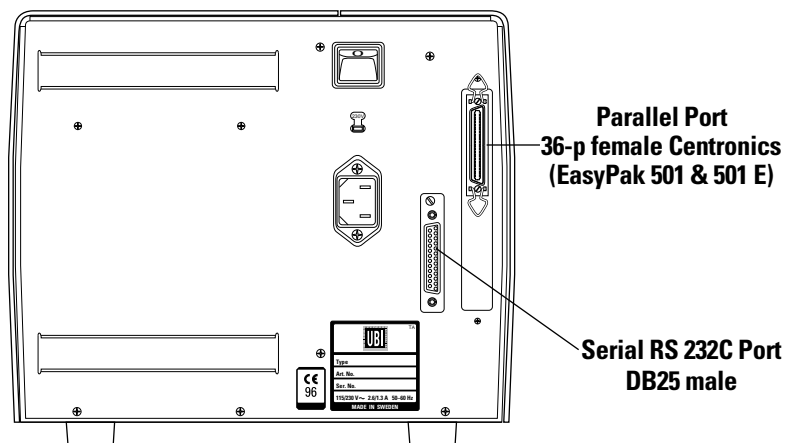
Hints:
- *For UBI LabelShop, UBI Direct Protocol, or UBI Fingerprint programming, use the "uart1:" serial RS 232C communication channel.*

- *For UBI Windows Driver, use the "centronics:" parallel communication channel.*

- *For the UBI Macintosh Driver, use the "uart1:" serial communication channel. A special cable with gender changer is included in the driver kit.*

- *UBI's standard communication cables and adapters makes it possible to connect the printer directly to the serial or parallel port of an IBM AT, XT or PS-2 personal computer, or the serial port of an Apple Macintosh computer.*

UBI Standard Cables

RS 232C Cables:	
Printer to IBM-AT	1-975581-05
Printer to IBM-XT/PS2	1-975580-05
Printer to Mac	1-010007-00
DB-25 Gender Changer	1-010008-00
Centronics Cable:	
DB-25/Centronics	1-010001-00

STARTING UP

Startup Files

At startup, the behaviour of the printer is decided by the possible existence of a startup (autoexec) file, i.e. a program that automatically starts running when the printer is turned on, somewhere in the printer's memory. There are five major possibilities:

A The printer is fitted with the *EasyPak Startup* program, which allows the operator to switch between *UBI LabelShop* and *UBI Windows Driver*.

B The printer is fitted with the *UBI Shell Standard* or *Enhanced* file-managing program, which allows the operator to choose between a variety of applications and functions.

C The printer is fitted with the *UBI Stand-Alone* program.

D The printer is fitted with *no startup file* at all.

E The printer is fitted with a *custom-made application program* that is design to perform a specific task, e.g. to print tickets, baggage tags, or product labels for a certain company.

EPROM	*= Erasable Programmable Read-Only Memory*
OTPROM	*= One-Time Programmable Read-Only Memory*
RAM	*= Random Access Memory*
ROM	*= Read-Only Memory*
SRAM	*= Static Random Access Memory*

There can be one startup file stored in each of the following parts of the printer's memory: RAM, ROM, and memory cards. If there are startup files stored in more than one place, they will be used with the following priority:

1. Dos-formatted memory cards (SRAM).
2. Printer's RAM memory.
3. Non DOS-formatted memory cards (SRAM or OTPROM).
4. Printer's ROM memory, e.g. the configuration EPROM's.

This implies that if you have a startup file stored in the configuration EPROM's and insert a memory card with another startup file before you turn on the printer, the startup file of the memory card will be used.

Turning On the Printer

Do not start the printer before you have made the necessary connections, inserted any memory card you want to use, and checked that the printhead is lowered and the optional cutter is in closed position.

Turn on the power by means of the main switch on the rear plate. The "**Power**" LED control lamp on the front panel lights up when the power is on. Wait for a few moments, while the printer loads the program and runs some self-diagnostic tests. If the printer is fitted with a paper cutter, it will rotate to home position. Finally, some kind of message will appear in the display window.

After starting up the printer for the first time, keep the power on overnight to recharge the memory backup battery.

STARTING UP, cont'd.

Messages at Startup

*The type of startup file running in the printer is indicated by the message shown in the display window **directly** after power up.*

A. EasyPak Startup Program (EasyPak 501 & 501 E)**:**

```
LABELSHOP          or    WINDOWS DRIVER
5 sec.                   5 sec.
   4 sec.                   4 sec.
      3 sec.                   3 sec.
         2 sec.                   2 sec.
            1 sec.                   1 sec.
```
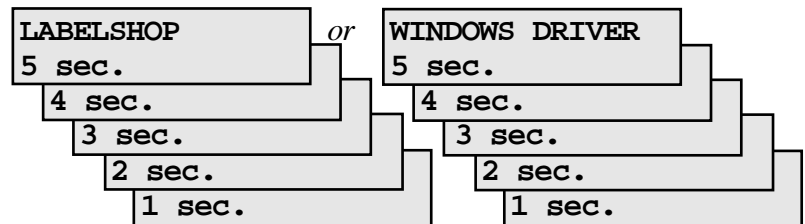
Refer to the *UBI EasyPak 501 Getting Started* or *UBI EasyPak 501 E Getting Started* manual for further information.

B. UBI Shell Startup Program (EasyCoder 501 & 501 E)**:**

```
PRINT=UBI SHELL    or    ENTER=UBI SHELL
5 sec.      v.4.0        5 sec.      v.4.0
   4 sec.      v.4.0        4 sec.      v.4.0
      3 sec.      v.4.0        3 sec.      v.4.0
         2 sec.      v.4.0        2 sec.      v.4.0
            1 sec.      v.4.0        1 sec.      v.4.0
```
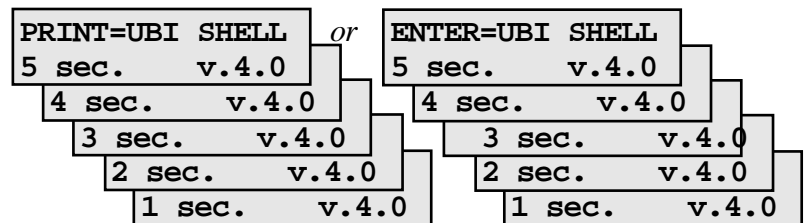
Refer to the *Startup Manual* of *UBI Shell Standard* or *UBI Shell Enhanced* respectively for further information. The digits in the lower right corner of the display indicate the version of *UBI Shell*.

C. UBI Stand-Alone Program (EasyPak 501 SA & EasyCoder 501 SA)**:**

```
UBI STAND-ALONE
Please wait 1min
```
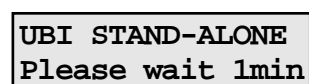
Refer to the *UBI Stand-Alone Concept, Operating Instructions* manual for further information.

D. No Startup File (non-standard EasyCoder 501 & 501 E)**:**

```
UBI Fingerprint
6.1
```

Refer to the documentation of the corresponding version of *UBI Fingerprint* for further information.

E. Custom-made Application Program (non-standard EasyCoder 501 & 501 E)**:**

Any other display message than those illustrated above indicate that the printer is running some custom-made, non-standard application program or that some error has occurred.

SETUP PARAMETERS

General Information

The setup allows you to adapt the printer for the desired type of computer communication and to control the printing. The setup parameters are:

Parameter	Options	Default[1]
❏ **Contrast**	Variable (0–10)	Middle (5)
❏ **Ser-Com**[2]:		
◆ Baudrate	300 ǀ 600 ǀ 1200 ǀ 2400 ǀ 4800 ǀ 9600 ǀ 19200 ǀ 38400[3]	9600
◆ Parity	even ǀ odd ǀ mark ǀ space ǀ none	none
◆ Char length	7 bits ǀ 8 bits	7 bits
◆ Stop bits	1 bit ǀ 2 bits	2 bits
◆ Flow control:		
- RTS/CTS	Enable ǀ disable (not on "uart2:" when RS 485 interface pcb fitted)	disable
- ENQ/ACK	Enable ǀ disable	disable
- XON/XOFF, data from host	Enable ǀ disable	enable
- XON/XOFF, data to host	Enable ǀ disable	enable
- Prot addr.	Enable ǀ disable ("uart2:"on RS 485 interface pcb only)	disable
◆ New line	CR/LF ǀ LF ǀ CR	CR/LF
❏ **Detection**:		
◆ LSS adjust	Variable	n.a.
◆ Feedadj:		
- Startadj	Variable ±	0
- Stopadj	Variable ±	0
❏ **Service**:		
◆ Media size:		
- X-start	Variable (8 dots/mm: 0 – 831; 11.81 dots/mm: 0–1279)	0/0
- Width	Variable (8 dots/mm: 0 – 832; 11.81 dots/mm: 0–1280)	832/1280
- Length	Unlimited	1200/1200
◆ Media type:	Label (w gaps) ǀ Ticket (w mark) ǀ Ticket (w gaps) ǀ Fix length strip ǀ Var length strip	Label (w gaps)
◆ Print defs:		
- Head resist	Set automatically at startup	n.a.
- Paper type	Select supply option. See chapter "Selecting Paper/Ribbon"	UBI HP 20[4]
- New supplies	Select a new type of supply by means of a 13-digit code	n.a.
- Testprint	A series of test labels can be printed[5]	n.a.
◆ Performance[5]:	Normal ǀ High ǀ Ultrahigh	Normal
◆ Memory alloc:		
- Image buff size	Variable (max. 250 kbyte)	48 kbyte[6]
- Rec buf size[2]	Variable	300 byte[6]
- Trans buf size[2]	Variable	300 byte

[1]/. "Default" refers to the default setup values in the standard configuration EPROM's. A custom-made printer fitted with non-standard configuration EPROM's may have a different combination of default setup values.

[2]/. The software is able to detect if any optional serial interface board is fitted. If so, the serial communication parameters and the size of the communication buffers are set up separately for each of the communication channels "uart1:", "uart2:", and "uart3:". There is no communication setup for the optional Centronics parallel communication channel.

[3]/. Baudrate 38400 is only available for "uart2:" and "uart3:" (requires an optional interface board).

[4]/. In EasyCoder 501 printers without a thermal transfer mechanism, the default paper option is RICOH 130LAB/LAM.

[5]/. Not available for EasyCoder 501.

[6]/. Higher default value for EasyCoder 501 SA.

SETUP PARAMETERS, cont'd.

This chapter explains the meaning of the various setup parameters. There are different ways to change the setup:
- *By means of the Setup Mode, see the chapters "Setting Up EasyCoder 501" and "Setting Up EasyCoder 501 E & 501 SA".*
- *By means of the Terminal Setup option in UBI Shell, see the UBI Shell Standard and Enhanced Startup Manuals.*
- *By means of setup files or setup strings. See the UBI Fingerprint Reference Manual, SETUP statement, or the UBI Direct Protocol Programmer's Guide.*

*Note that the following setup options are **excluded** in the Easy-Coder 501 printer model:*
- *Serial communication setup for communication channels "uart2:" and "uart3:" (no extra serial interface boards can be connected).*
- *Communication buffer setup for communication channels "uart2:" and "uart3:" (no extra serial interface boards can be connected).*
- *Performance setup (fixed print speed setup).*

Contrast

The contrast setup allows you to make minor adjustment of the printout in regard of blackness, e.g. to adapt the printer to variations in quality between different batches of the same paper quality.

Serial Communication
- Baudrate
- Parity
- Character Length
- Stop Bits
- Flow Control
- New Line

The serial communication setup controls the communication between the printer and the connected computer or other devices on the standard serial channel "uart1:" and the optional serial channels "uart2:" and "uart3:". The latter two channels require an optional interface board to be fitted. The printer's firmware detects if an optional interface board is fitted and presents additional sets of communication setup menus for each serial channel.

The serial communication setup has no consequence whatsoever for parallel communication via an optional parallel interface board or for the IN and OUT ports on the optional Industrial Interface Board.

For each serial communication channel, the following parameters can be set. Make sure they match the setup of the connected device or vice versa. The default setup (indicated by bold characters below) is selected as to make the printer understand and act upon *UBI Fingerprint* instructions transmitted from the host, regardless how the host is set up. If the setup of the printer and the setup of the host do not match, the response from the printer to host will be garbled.

Continued!

SETUP PARAMETERS, cont'd.

Serial Communication, cont'd.

- **Baudrate:**
  The baudrate is the transmission speed in bits per second. The following baudrates can be selected:

300	
600	
1200	
2,400	
4,800	
9,600	Max. recommended baudrate for 20 mA current loop
19,200	
38,400	Only available on "uart2:" and "uart3:".

  If communication problems occur, try a lower baudrate.

- **Parity:**
  The parity decides how the software will check for transmission errors. There are five options:
  None
  Even
  Odd
  Mark
  Space

- **Character Length:**
  The character length specifies the number of bits in a character. For most purposes 7 bits will be sufficient, but if special characters or characters specific for other languages are to be used, 8 bits are recommended. Refer to the *UBI Fingerprint* Reference Manual for information on which characters are available in various combinations of character length and character set.

  7   Characters ASCII 0 – 127 decimal can be transmitted.
  8   Characters ASCII 0 – 255 decimal can be transmitted.

- **Stop Bits:**
  The number of stop bits specifies how many bits will define the end of a character. There are two options:

  1
  2

- **Flowcontrol:**
  There are several different ways to control the exchange of data between the printer and the connected computer or other device ("Handshaking"). Each option can be enabled or disabled separately, but normally only one alternative should be selected. For galvanically insulated interfaces, i.e. 20 mA current loop and RS 422/485, ENQ/ACK or XON/XOFF are to prefer in order to retain interference protection and limit the number of lines.

  Continued!

SETUP PARAMETERS, cont'd.

Serial Communication, cont'd.

- **Flowcontrol, cont'd:**

  RTS/CTS

  This is a protocol where the communication is controlled by currents through separate lines in the cable being set either to high or low. By default, this option is disabled.

  RTS high indicates that the transmitting unit is able to receive characters. RTS low indicates that the receive buffer is filled to 75% (see XON/XOFF).

  CTS high indicates that the unit transmitting the CTS signal is ready to receive data. CTS low indicates that the receive buffer is full (see XON/XOFF). In some computer programs, e.g. *MS Windows Terminal*, RTS/CTS is designated "Hardware".

  In case of "uart2:" on the RS 422/485 Interface Board, the RTS/CTS option is replaced by "Prot Addr: Enable/Disable". The combination of "Prot Addr: Enable/Disable" and "XON/XOFF; Data to Host: Enable/Disable" decides RS 422 or RS 485 communication. When using the option "Prot addr: Enable", the verbosity must be turned off by means of a VERBOFF statement. See *UBI Fingerprint* Programmer's Guide for further information.

  DTR

  DTR ("Data Terminal Ready") is a signal, which is not controlled in the setup mode, but by straps on the CPU board or interface board. DTR high indicates that the transmitting unit is turned on.

  ENQ/ACK

  In this protocol, the communication is controlled by the special characters ENQ (ASCII 05 dec.) and ACK (ASCII 06 dec.) being transmitted on the same line as the data. The sending unit transmits ENQ at regular intervals. If the response ACK is not received the transmission is held up awaiting an ACK character from the receiving unit. By default, this option is disabled.

  XON/XOFF

  In this protocol, the communication is controlled by the special characters XON (ASCII 17 dec.) and XOFF (ASCII 19 dec.) being transmitted on the same line as the data. XON/XOFF can be enabled/disabled separately for data received from the host by the printer (printer sends XON/XOFF), and for data transmitted to the host from the printer (host sends XON/XOFF).

  XOFF is sent from the printer when its receive buffer is filled by 75%, and the transmission from the host is held up awaiting an XON character. When enough data have been processed that the receive buffer is filled only to 50%, the printer sends an XON character and the host resumes transmitting data. The same principles apply to XON/XOFF sent by the host, even if the percentage may differ.

  By default, XON/XOFF is enabled for data both ways.

- **New Line:**

  This setup parameter allows you select the character(s) transmitted from the printer to specify the switching to a new line. There are three options:
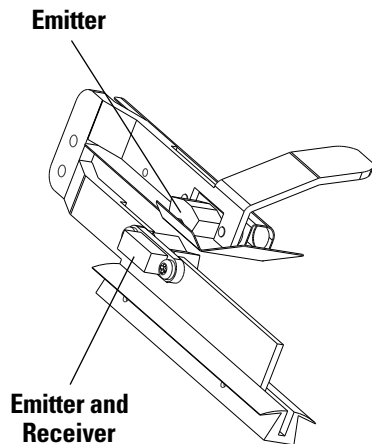
CR/LF	ASCII 13 dec. + ASCII 10 dec.
LF	ASCII 10 dec.
CR	ASCII 13 dec.

SETUP PARAMETERS, cont'd.

Detection
• LSS Adjustment
• Feed Adjustment

Emitter

**Emitter and
Receiver**

*The upper part of the LSS is a light emitter
for labels, tickets and strip, whereas the
lower part contains both a receiver and
an emitter for black mark detection.*
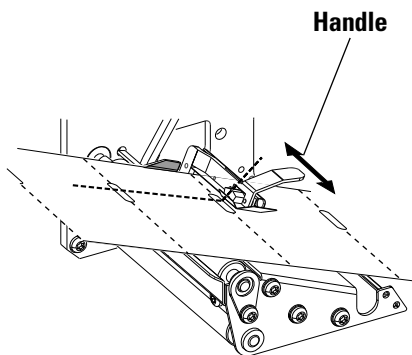
Handle

*The inner edge of the handle indicates the
position of the LSS.*

Note!
*Printers fitted with a ribbon save device
have different type of label stop/black
mark sensor mechanism, where the
lateral position of the sensor is adjusted
by means of a screw instead of a handle,
see chapter "Ribbon Save Device" later
in this manual.*

---

*The Detection facilities are used to adjust the label stop/black mark
sensor (LSS) and to control the paper feed.*

LSS Adjustment:

The LSS is a photo-electric detection device that controls the paper
feed. Situated inside the printing mechanism, it detects the front
edges of the labels, slits in tickets or tags, or the rear edges of black
marks on the back side of the paper web.

If the printer is set up for "Label (w gaps)", "Ticket (w gaps)", "Fix
length strip", or "Var. length strip", a narrow beam of light is
emitted from the upper part of the LSS and received by the sensor
in the lower part. Non-transparent paper will block the beam
completely, whereas semi-transparent backing paper between la-
bels will allow some of the light to pass through. A detection gap in
the ticket web causes no interference at all. An out-of-paper
condition is assumed, when no interference to the beam has been
detected within a feed length corresponding to the distance between
the dot line on the printhead and the sensor.

When the printer is set up for "Ticket (w mark)", the light is emitted
from the lower part of the LSS. The beam can be reflected back to
the receiver by the white paper at the back of the web. If the beam
hits a black mark, practically no light will be reflected back. An out-
of-paper condition is assumed, when no reflected light has been
detected within a feed length corresponding to the distance between
the dot line on the printhead and the sensor.

Obviously, it is important that the printer is set up for the correct type
of media (see *"Media Type"* later in this chapter) so the firmware
can interpret the signals correctly.

The LSS can be moved max. 50 mm sideways across the web. The
inner edge of the handle indicates the lateral position of the sensor.

The LSS is automatically fine-adjusted when a Testfeed operation
is performed. Moreover, the LSS emitters can be adjusted in regard
of light intensity in the Setup Mode or by means of setup files and
the LSS receiver can be adjusted by means of a potentiometer on the
CPU board (see the chapter *"Electronics/Potentiometers"*).

If the printer works as expected, there is no need to adjust the LSS,
but if the printer starts to feed out labels or tickets in an unexpected
manner, check that the sensor is properly aligned in relation to the
web and that it has not become dirty. Perform a few Testfeed
operations to allow the sensor to auto-adjust itself.

If the error remains, proceed according to the description of the
Setup Mode for the printer model in question. Only as a last resort
should the potentiometer be adjusted.

Continued!

SETUP PARAMETERS, cont'd.

Detection, cont'd.

TPH density 8 dots/mm (203.2 dpi):
Both directions:
1 dot = 0.125 mm = 4.92 mils

TPH density 11.81 dots/mm (300 dpi):
Across the web (11.81 dots/mm):
1 dot = 0.085 mm = 3.33 mils
Along the web (12 dots/mm):
1 dot = 0.083 mm = 3.28 mils

Rec. adjustments:

Density:	8 dots/mm	11.81 dots/mm
Dispensing:		
Start adjust:	-90	-135
Stop adjust:	-24	-36
Tear Off:		
Start adjust:	-114	-171
Stop adjust:	0	0
Strip:		
Start adjust:	-114	-171
Stop adjust:	70	105
Cutting between labels:		
Start adjust:	-294	-441
Stop adjust:	+180	+270
Cutting variable length strip:		
Start adjust:	-294	-441
Stop adjust:	+250	+375

For more information on the instructions FORMFEED and PRINTFEED, see UBI Fingerprint Reference Manual or UBI Direct Protocol Programmer's Guide.

Feed Adjustment:

The Feed Adjustment contains two parameters, **Start adjustment** and **Stop adjustment**, that will be effected regardless of which program is run. Such global adjustments can be further modified for various purposes by the use of FORMFEEDs within the currently running program.

Note 1: It is possible to turn off the label stop sensor for a certain amount of paper feed, and to override the start adjustment and stop adjustment setup by means of LBLCOND statement, see UBI Fingerprint manuals.

*Note 2: In case of 11.81 dots/mm (300 dpi) thermal printhead (TPH) density, the paper feed is actually 12 dots/mm, which affects all measures **along** the paper web. In most cases, the difference will be hard to notice, but in case of large values, this fact must be considered. There is no such difference for the 8 dots/mm (203.2 dpi) printers.*

The **Start Adjustment** is given as a positive or negative number of dots:

- A **positive** start adjustment means that the specified length of paper web will be **fed out before** the printing starts. Accordingly, the origo is moved away from the forward edge of the copy. (This has the same effect as a positive FORMFEED before a PRINTFEED).

- A **negative** start adjustment means that the specified length of paper web will be **pulled back before** the printing starts. Accordingly, the origo is moved towards the forward edge of the copy. (This has the same effect as a negative FORMFEED before a PRINTFEED).

The **Stop Adjustment** is set up the same way.

- A **positive** stop adjustment means that the specified length of paper web will be **fed out after** the printing is completed. Accordingly, the origo is moved away from the forward edge of **next** copy. (This has the same effect as a positive FORMFEED after a PRINTFEED).

- A **negative** stop adjustment means that the specified length of paper web will be **pulled back after** the printing is completed. Accordingly, the origo is moved towards the forward edge of **next** copy. (This has the same effect as a negative FORMFEED after a PRINTFEED).

SETUP PARAMETERS, cont'd.

Media Size
• X-start
• Width
• Length

TPH density 8 dots/mm (203.2 dpi):
Both directions:
1 dot = 0.125 mm = 4.92 mils

TPH density 11.81 dots/mm (300 dpi):
Across the web (11.81 dots/mm):
1 dot = 0.085 mm = 3.33 mils
Along the web (12 dots/mm):
1 dot = 0.083 mm = 3.28 mils

Note!
It is important to change the width setup whenever a narrow paper is used. Never print outside the paper web! That may cause damage to the printhead by overheating, since the paper serves as a cooling media for the printhead dots.

X-start, Width and Length:

To protect the printhead from the potentially harmful condition of printing outside the paper web, a printable area must be specified by the use of the setup parameters *X-start*, *Width* and *Length.*

❑ **X-start** specifies the position of the origo along the dots on the printhead. By default, X-start is set as 0, i.e. at dot No. 0 which is the dot closest to the printer's centre-line wall.

Printhead density	8 dots/mm	11.81 dots/mm
Number of dots:	832	1280
Outermost dot number:	831	1279
Max. print width:	104 mm (≈ 4.1")	108.3 (≈4.3")

By setting a value larger than 0 for the X-start parameter, you will move the origo outwards, away from the inner edge of the web. In other words, the larger X-start value – the wider inner margin and the less printable area.

❑ **Width** specifies the width of the printable area and is defined as a number of dots from the origo. The sum of the X-start value and the width value gives the outer margin of the printable area, as illustrated on next page. The width must not be so large as to allow printing outside the paper web.

❑ **Length** serves three purposes:

• To decide the length of the printable area from origo and along the Y-coordinate as a number of dots.
• To decide the amount of paper feed when using "fix length strip".
• To set an "emergency stop", which works when the printer is set up for "Label (w gaps)", "Ticket (w mark)", or "Ticket (w gaps)". If the LSS has not detected a gap or mark within 150% of the set length, the paper feed is automatically stopped to avoid feeding out a whole roll of paper, e.g. because of a blocked or faulty LSS.

This implies that you can use labels or tickets longer than the printable area as illustrated by the following table:

Density:	8 dots/mm	11.81 dots/mm
Max. printable area (9999 dots):	1,250 mm (49.2")	833 mm (32.8")
Max. label or ticket length:	1,875 mm (73.8")	1,250 mm (49.2")

By setting up the **X-start**, the **Width** and the **Length**, you will create a "print window" in which the printing can be performed. Any object or field protruding outside the print window in any direction will cause an error condition (*Error 1003 "Field out of label"*) and the printing will be inhibited.

Continued!

SETUP PARAMETERS, cont'd.

Print Window:
8 dots/mm (203.2 dpi)
printhead in left-hand position
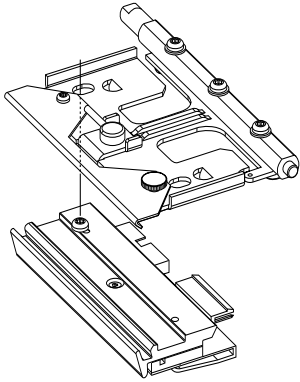
The 8 dots/mm printhead can be fitted in two positions. When the printhead is fitted in the innermost, left-hand position (see illustration), dot No. 0 is aligned with the inner edge of the paper web. Since the maximum print width is 104 mm (4.1") and the maximum web width is 120 mm (4.7"), this leaves a margin of at least 16 mm (0.6") along the outer edge of the web, where no printing can be performed.

From paper supply

16 mm (0.63")

104 mm (4.1")

Length

PRINT WINDOW

Origo

Dot-line on printhead

X-start   **Width**

Dot 0

PAPER FEED DIRECTION

Dot 831

max. 120 mm (4.7")
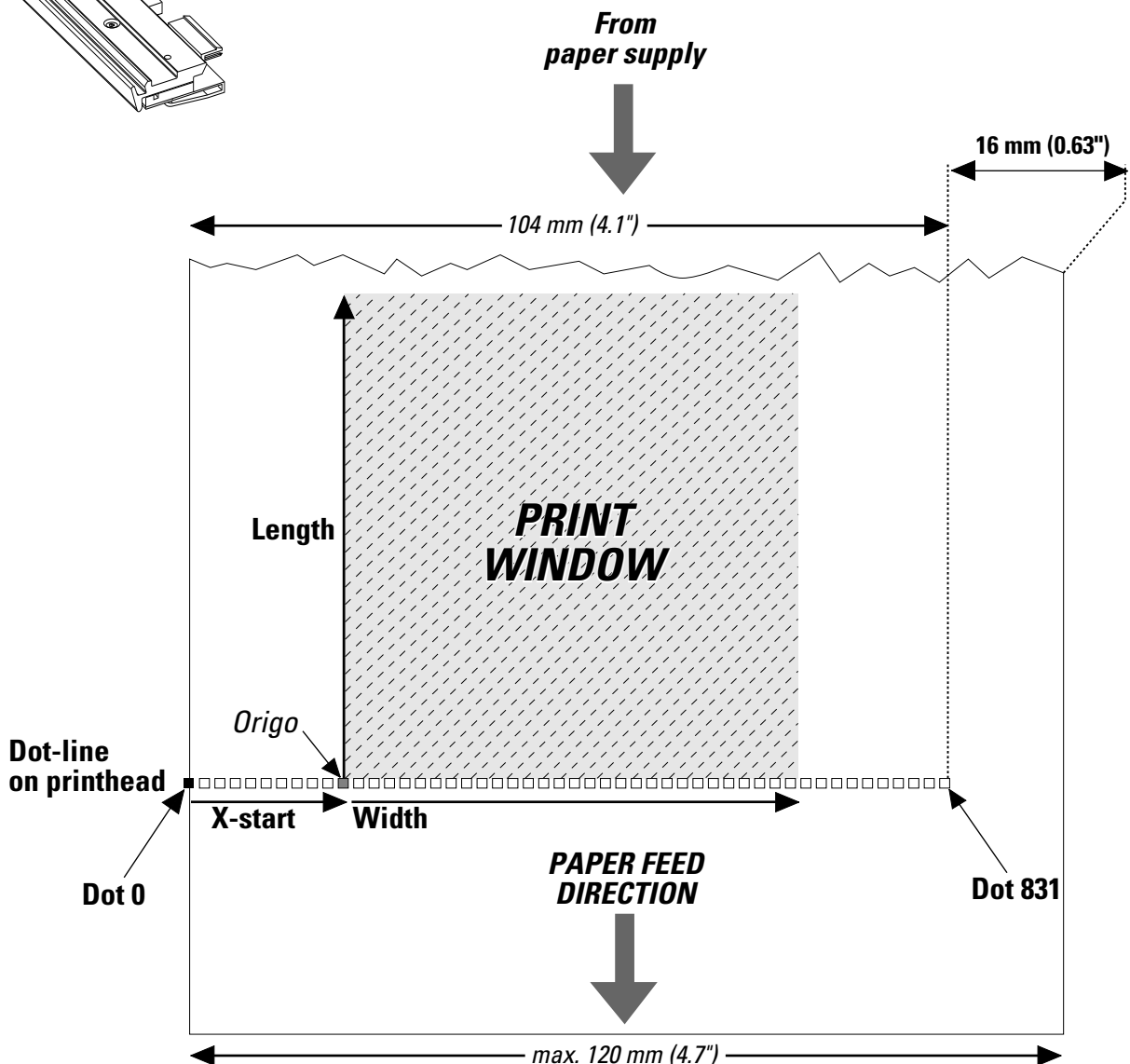
Continued!

SETUP PARAMETERS, cont'd.

Print Window:
8 dots/mm (203.2 dpi)
printhead in right-hand position
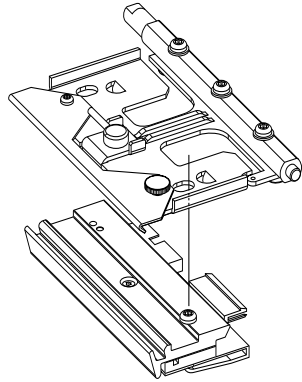
The 8 dots/mm printhead can be fitted in two positions. When the printhead is fitted in the outer, right-hand position (see illustration), dot No. 0 is situated 3 mm (0.12") inwards from the inner edge of the paper web. Since the maximum print width is 104 mm (4.1") and the maximum web width is 120 mm (4.7"), this leaves a margin of at least 13 mm (0.51") along the outer edge of the web, where no printing can be performed. Furthermore, if an 110 mm (4.33") wide web is used, the printhead will be centre-aligned with a 3 mm (0.12") wide margin on either side.

From paper supply

3 mm (0.12")   13 mm (0.51")

104 mm (4.1")

Length

PRINT WINDOW

Origo

Dot-line on printhead

X-start   **Width**

Dot 0

PAPER FEED DIRECTION

Dot 831

110 mm (4.33")
max. 120 mm (4.7")

Continued!

SETUP PARAMETERS, cont'd.

Print Window:
11.81 dots/mm (300 dpi)
printhead

The 11.81 dots/mm printhead should only be fitted in the right-hand position (see illustration). Dot No. 0 is situated 0.8 mm (0.03") inwards of the inner edge of the paper web. Since the maximum print width is 108.3 mm (4.26") and the maximum web width is 120 mm (4.7"), this leaves a margin of at least 10.9 mm (0.43") along the outer edge of the web, where no printing can be performed.

From paper supply

0.8 mm (0.03")

10.9 mm (0.43")

108.3 mm (4.26")

Length

PRINT WINDOW

Origo

Dot-line on printhead

X-start   **Width**

Dot 0

PAPER FEED DIRECTION

Dot 1279

max. 120 mm (4.7")
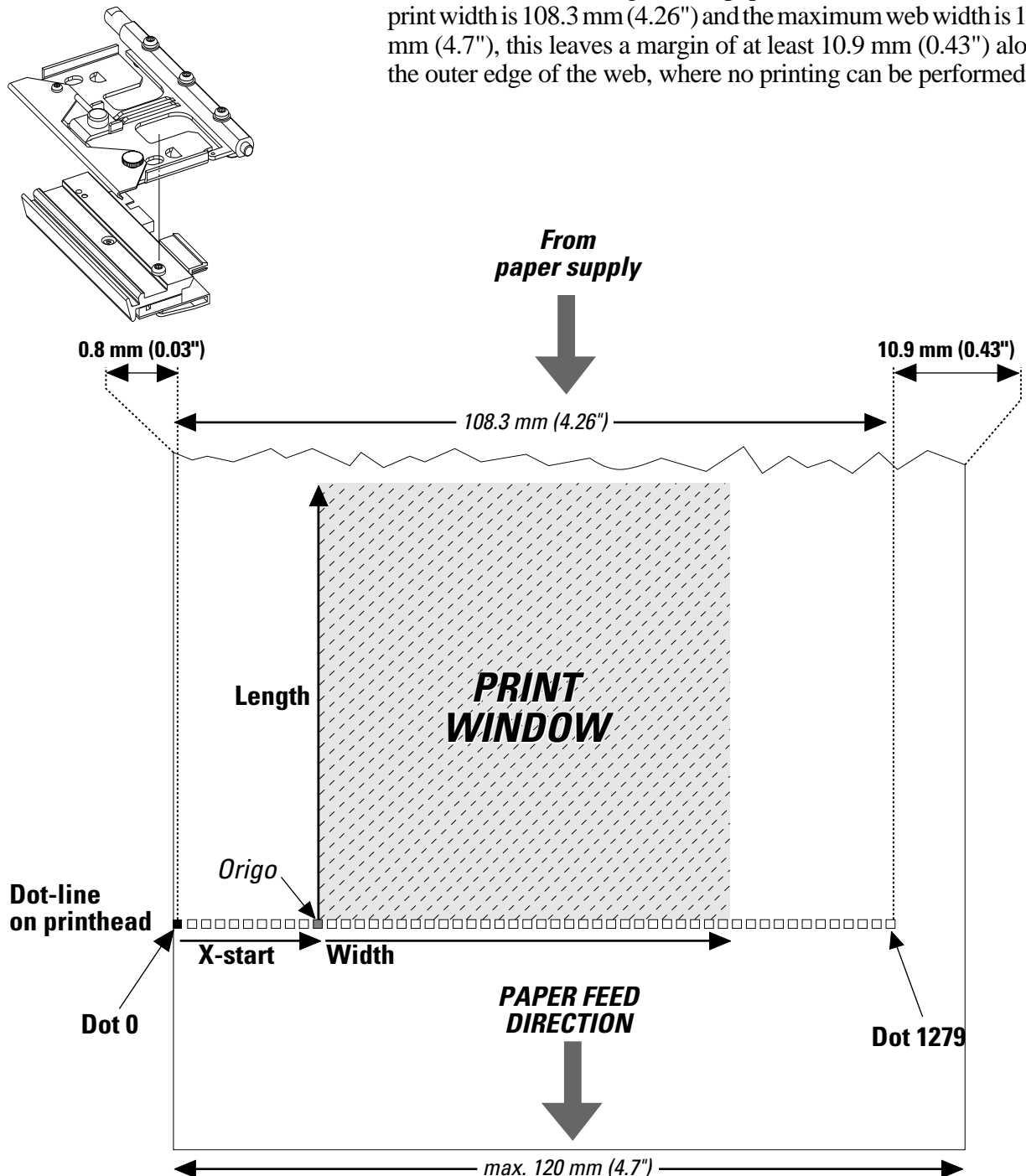
Continued!

SETUP PARAMETERS, cont'd.

Media Type

The Media Type setup controls how the LSS and the paper feed work. There are five different media types:

❏ **Label (w gaps)** is used for adhesive labels mounted on backing paper.

❏ **Ticket (w mark)** is used for labels, tickets, or strip provided with black marks at the back of the paper web.

❏ **Ticket (w gaps)** is used for tickets and tags with detection slits.

❏ **Fix length strip** means that the length of the print window decides the length of strip to be fed out.

❏ **Var length strip** adds a sufficient amount of paper feed after the last printable dot (may even be a blank space character or a "white dot" in an image) to allow the strip to be torn off.

It is important to select the correct option, so the printer can indicate possible paper errors. Two different error conditions may occur:

Error 1005 "Out of paper" indicates that the last ordered copy could not be printed because of an empty paper stock.

Error 1031 "Next label not found" indicates that the last ordered label or ticket was successfully printed, but no more labels/tickets can be printed because of an empty paper stock.

Print Defines
• Printhead Resistance
• Paper Type
• New Supplies
• Test Print

Head Resistance:

The power to the printhead is adjusted automatically according to the printhead resistance each time the printer is started. There is no manual head resistance setup, but it is possible to view the last measured value in the Setup Mode of *EasyCoder 501 E* and *501 SA*.
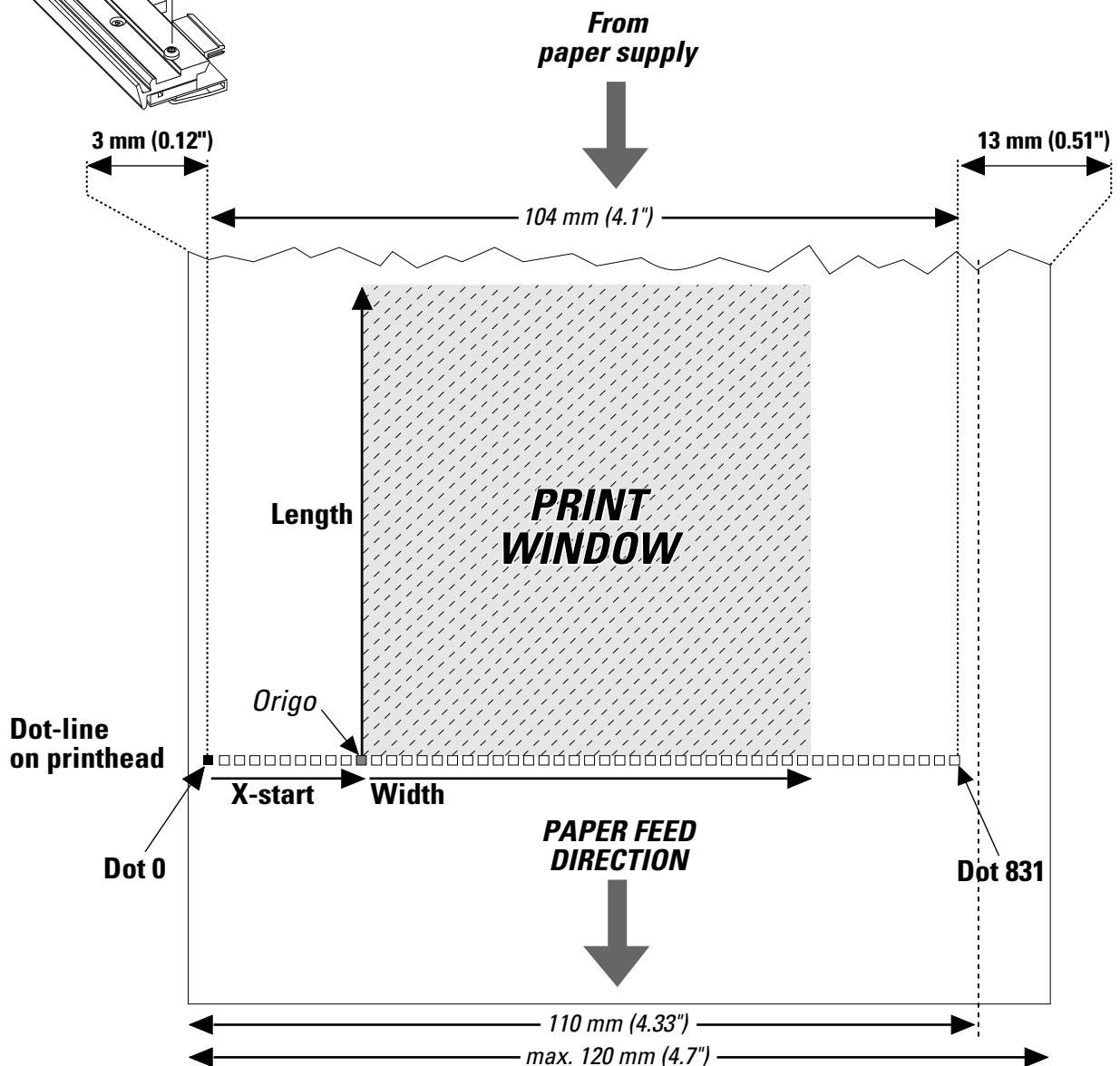
Paper Type:

To obtain the best printout quality, the printer should be set up for the characteristics of the brand of direct thermal paper or transfer ribbon currently used, see chapter *"Selecting Paper/Ribbon"*. Any attempt to print with transfer ribbon loaded and the printer set up for direct thermal paper, or vice versa, will result in an error condition (*Error 1027 "Out of transfer ribbon"* or *Error 1058 "Transfer ribbon fitted"*).

Note:
In EasyCoder 501 printers without any thermal transfer mechanism, only direct thermal paper options are available.

New Supplies:

Other types of supplies, than those included as standard options in the paper type setup, can be selected by means of a 13 digit code, provided by the manufacturer or distributor. After a new supply has been selected once by means of "New Supplies", it will be stored in the RAM memory and appear as an option in "Paper Type", specified by the first 4 digits in its code number. *Continued!*

SETUP PARAMETERS, cont'd.

Print Defines, cont'd.

Test Print:

This option allows you to print a series of test labels as illustrated below. The labels are the same as in the *Test Label* option in the *UBI Shell* program and in the *EasyPak Startup* program.

First, four test labels intended to facilitate adjustment of the print-head pressure and alignment are printed. Then comes one or more labels showing the printer's current setup, before the loop starts all over again.
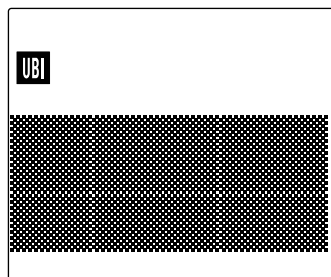
Test label 1
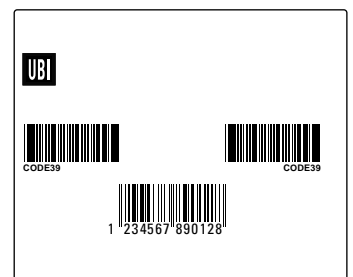
Test label 2
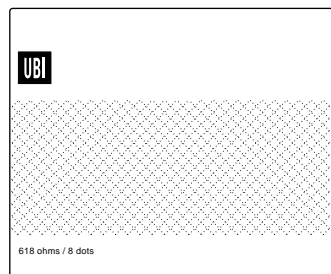
Test label 3
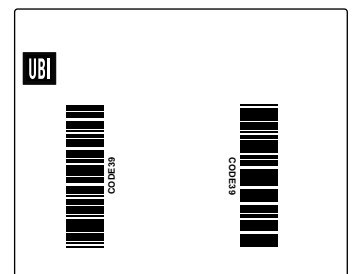
Test label 4
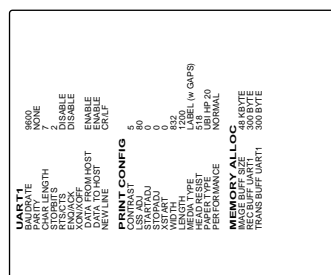
Test label 5....

Note:
The illustrations of the test labels are not representative of the printout quality to be expected from your printer.

Continued!

SETUP PARAMETERS, cont'd.

Performance

The Performance setup allows you to select the print speed for *EasyCoder 501 E* and *SA*, whereas *EasyCoder 501* has a fixed speed setting. There are three options:
- **Normal**
- **High**
- **Ultra High**

These options translate to different nominal print speeds depending on printer model, printhead density, type of printing, and type of transfer ribbon, as illustrated in the tables below[1].

EasyCoder 501   (Print speed cannot be selected)
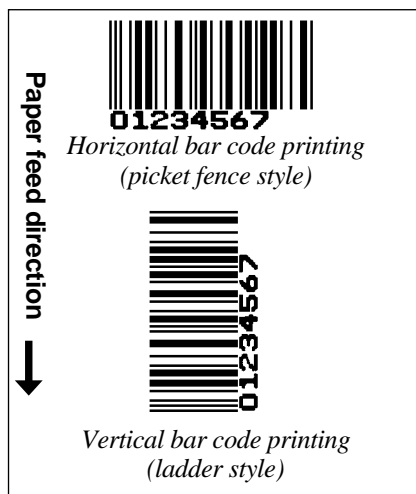
Thermal Transfer Printing			GP & HP Ribbon
Printhead Density	*Text Printing*	*Hor. bar code*	*Vert. bar code*
8 dots/mm	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
11.81 dots/mm	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)

Thermal Transfer Printing			HR Ribbon
Printhead Density	*Text Printing*	*Hor. bar code*	*Vert. bar code*
8 dots/mm	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
11.81 dots/mm	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)

Direct Thermal Printing			
Printhead Density	*Text Printing*	*Hor. bar code*	*Vert. bar code*
8 dots/mm	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
11.81 dots/mm	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)

EasyCoder 501 E & EasyCoder 501 SA   **8 dots/mm (203.2 dpi)**

Thermal Transfer Printing			GP & HP Ribbon
Performance	*Text Printing*	*Hor. bar code*	*Vert. bar code*
Normal	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
High	200 mm/s (≈ 8"/s)	200 mm/s (≈ 8"/s)	100 mm/s (≈ 4"/s)
Ultra High	200 mm/s (≈ 8"/s)	200 mm/s (≈ 8"/s)	200 mm/s (≈ 8"/s)

Thermal Transfer Printing			HR Ribbon
Performance	*Text Printing*	*Hor. bar code*	*Vert. bar code*
Normal	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
High	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
Ultra High	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)

Direct Thermal Printing			
Performance	*Text Printing*	*Hor. bar code*	*Vert. bar code*
Normal	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)	100 mm/s (≈ 4"/s)
High	150 mm/s (≈ 6"/s)	150 mm/s (≈ 6"/s)	100 mm/s (≈ 4"/s)
Ultra High	150 mm/s (≈ 6"/s)	150 mm/s (≈ 6"/s)	150 mm/s (≈ 6"/s)

Horizontal bar code printing (picket fence style)

Vertical bar code printing (ladder style)

Paper feed direction

01234567

Transfer Ribbon Designations:
GP: General Purpose
HP: High Performance
HR: High Resistance

See the chapter "Transfer Ribbons and Receiving Media".

[1]. *Supplies, which have been specified by means of the "New Supplies" option, have separate fixed settings in regard of print speed. Whenever such a supply is selected, the "Performance" setup will be of no consequence*

Continued!

SETUP PARAMETERS, cont'd.

Performance, cont'd.

EasyCoder 501 E & EasyCoder 501 SA   11.81 dots/mm (300 dpi)

Thermal Transfer Printing			GP & HP Ribbon
Performance	**_Text Printing_**	**_Hor. bar code_**	**_Vert. bar code_**
Normal	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)
High	125 mm/s ($\approx$ 5"/s)	125 mm/s ($\approx$ 5"/s)	100 mm/s ($\approx$ 4"/s)
Ultra High	125 mm/s ($\approx$ 5"/s)	125 mm/s ($\approx$ 5"/s)	125 mm/s ($\approx$ 5"/s)

Thermal Transfer Printing			HR Ribbon
Performance	**_Text Printing_**	**_Hor. bar code_**	**_Vert. bar code_**
Normal	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)
High	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)
Ultra High	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)

Direct Thermal Printing			
Performance	**_Text Printing_**	**_Hor. bar code_**	**_Vert. bar code_**
Normal	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)	100 mm/s ($\approx$ 4"/s)
High	125 mm/s ($\approx$ 5"/s)	125 mm/s ($\approx$ 5"/s)	100 mm/s ($\approx$ 4"/s)
Ultra High	125 mm/s ($\approx$ 5"/s)	125 mm/s ($\approx$ 5"/s)	125 mm/s ($\approx$ 5"/s)

Memory Allocation
• Image Buffer
• Receive Buffer(s)
• Transmit Buffer(s)

The Memory Allocation setup allows you to set the size for three kinds of memory buffers.

❏ The **Image Buffer** stores the printout image before printing and during batch printing. To ensure that high print speed is sustained during the printing of demanding label formats, the size of the Image Buffer may need to be increased. The maximum size of the image buffer is 250 kbytes.

❏ The **Receive Buffer** stores the input data received on the serial communication channel "uart1:" before processing. The software is able to detect if an optional serial interface board is fitted. If so, the size of the receive buffer for each serial communication channel ("uart1:", "uart2:", and "uart3:") can be set separately.

❏ The **Transmit Buffer** stores the output data on the serial communication channel "uart1:" before transmission. The software is able to detect if an optional serial interface board is fitted. If so, the size of the transmit buffer for each serial communication channel ("uart1:", "uart2:", and "uart3:") can be set separately.

SETTING UP EASYCODER 501

Different Methods

The EasyCoder 501 is intended for applications, where the printing will be controlled from a host computer and very little action is required by the operator. Accordingly, there is only one key available on the membrane keyboard on this type of printer.

The use of optional serial interface boards have been excluded from this model. The same applies to the choice of performance level.

The method of changing the setup depends on whether the printer is fitted with some kind of startup file, a subject that was more thoroughly discussed in the chapter Starting Up earlier in this manual, to which the alphabetic references below refer.

A. EasyCoder 501 with EasyPak Startup:

There is no Setup Mode in the *EasyPak Startup* program, but some setup parameters can be changed from within *UBI LabelShop,* and – for the *UBI Windows Driver* – from *"Control Panel/ Printers"* in *Microsoft Windows.*

B. EasyCoder 501 with UBI Shell:

- You can change any setup parameter via the *Terminal Setup* option in *UBI Shell Standard*.
- You can change the LSS setup via the *Setup* option of *UBI Shell*.
- As an alternative, you can also change the setup by means of a setup file or setup string, see SETUP in the *UBI Fingerprint* Reference Manual or in the *UBI Direct Protocol* Programmer's Guide.

D. EasyCoder 501 with no startup file installed:

- An *EasyCoder 501* without any startup file can only be set up by means of setup files or setup strings, see SETUP in the *UBI Fingerprint* Reference Manual or in the *UBI Direct Protocol* Programmer's Guide.

E. EasyCoder 501 with a custom-made application program:

- Normally, necessary provisions for changing the setup should be provided by the program by means of setup files or setup strings, see SETUP in the *UBI Fingerprint* Reference Manual or in the *UBI Direct Protocol* Programmer's Guide.

SETTING UP EASYCODER 501 E & 501 SA

General Information

EasyCoder 501 E (Enhanced) is intended for applications, where the printer not only can be controlled from a host computer, but also to some extent from the its built-in membrane keyboard.

To allow full flexibility, each key is programmable and the keyboard can be remapped.

Keys, that are not used, can be disabled and the beep signal, that usually acknowledges a key being activated, can be turned off. Please refer to the *UBI Fingerprint* Reference Manual, statements KEY ON/OFF, ON KEY GOSUB and KEY BEEP for further information.

EasyCoder 501 E can be set up by means of setup files and setup strings (see SETUP in the *UBI Fingerprint* Reference Manual or in the *UBI Direct Protocol* Programmer's Guide), but is also provided with a "Setup Mode" which allows it to be set up in regard of all parameters by means of its own keyboard. The Setup Mode can be accessed via the *UBI Shell Enhanced* program, by the issuing of the *UBI Fingerprint* statement SETUP, or by pressing the < **Setup** >key in the *UBI Fingerprint's* immediate mode.

In *EasyPak 501 E* printers you can access the Setup Mode by means of the < **Setup** >key after either the *UBI LabelShop* or the *Windows Driver* option has been selected. In the latter case you can only use the < **Setup** > key until the first transmission is received from the host.

EasyCoder 501 SA (Stand-Alone) and *EasyPak 501 SA* printers are fitted with a dedicated application program, which allows the operator to control the printer from its own keyboard without any computer being connected. The *Stand-Alone* program, which is described in a separate manual, provides access to the Setup Mode, which is exactly the same as for *EasyCoder 501 E*, with the exception of some key designations.

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

**Entering the Setup Mode
at Installation**

The method of entering the Setup Mode depends on whether the printer is fitted with some kind of startup file, a subject that was more thoroughly discussed in the chapter Starting Up earlier in this manual, to which the alphabetic references below refer.

A. EasyCoder 501 E with EasyPak Startup:

• Turn on the power.
• Select either the *UBI LabelShop* or the *Windows Driver* option.
• Press the < **Setup** > key (in case of the *Windows Driver*, this must be done before any data is received from the host).
• Set up the printer as described in this chapter. In case of *UBI LabelShop*, **do not** change the communication setup on "uart1:".
• Return to the selected option by pressing the < **Setup** > key.

B. EasyCoder 501 E with UBI Shell:

• Turn on the power.
• When the display shows the message "*Enter=UBI Shell; x sec.*", press < **Enter** >.
• Press the < **Setup** > key (this facility can be used anywhere within *UBI Shell Enhanced*).
• Set up the printer as described in this chapter.
• Return to *UBI Shell Enhanced* by pressing the < **Setup** > key.

C. EasyCoder 501 SA:

• Turn on the power.
• In the Set Mode of the *UBI Stand-Alone* program, select the "*Setup*" option and then the *"Printer"* option.
• Set up the printer as described in this chapter.
• Exit to the *UBI Stand-Alone* program by pressing < **Save** >.

D. EasyCoder 501 E with no startup file installed:

• Turn on the power.
• In the immediate mode of *UBI Fingerprint*, press the < **Setup** > key.
• Set up the printer as described in this chapter.
• Exit to the immediate mode of *UBI Fingerprint* by pressing the < **Setup** > key.

E. EasyCoder 501 E with a custom-made application program:

• Normally, there will be no need to enter the Setup Mode for custom-made application programs. Necessary provisions for changing the setup, manually or automatically, should be provided by the program.

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Using the Keyboard in the Setup Mode:

While going through the setup procedure, you are guided by texts in the printer's display. You can step between setup menus, acknowledge displayed values, select or type new values etc. by means of some of the keys on the printer's keyboard (an external keyboard cannot be used within the Setup Mode):

501 E	501 SA	Application
F1	Ins	*Used to view the current value of the LSS setup.*
F2	Del	*Used to decrease the value for the LSS setup 1 step.*
F3	Esc	*Used to increase the value of the LSS setup 1 step.*
F4	←	*Used to move up between menus, to scroll backwards between options in stacks, and to decrease the value of the contrast 1 step, or the LSS 10 steps.*
F5	→	*Used to move down between menus, to scroll forward between options in stacks, and to increase the value of the contrast 1 step, or the LSS 10 steps.*
Setup	Save	*Used to exit the Setup Mode and save the parameter values. It can be used anywhere in the Setup Mode.*
Common		
Feed		*Used to auto-adjust the label stop sensor and produce a paper feed.*
Enter		*Used to acknowledge a displayed value or choice, and to step forward to next menu or level.*
0 - 9		*Numeric keys 0–9 are used to enter passwords and numeric values.*
.		*Used to indicate negative values.*
C		*Used to return to a previous menu and to clear erroneously entered values.*
Print		*Used to print test labels.*

- **Press F4/<– key to browse back.**
- **Press F5/–> key to browse forward.**
- **Press Enter to select an option.**

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Setup Mode Overview, Part 1

```
SETUP:              min CONTRAST max      • Press F4/<- key to decrease 1 step
CONTRAST            ■                     • Press F5/-> key to increase 1 step
```

LEGEND:
Boxes with thick lines indicate default setup
Boxes with dotted lines indicate menus related to
optional interface boards.

```
SETUP:              SER-COM:              SER-COM:              BAUDRATE:
SER-COM             UART1                 BAUDRATE              9600
                      UART2                                       19200
                        UART3                                       38400
                                                                      300
                                                                        600
                                                                          1200
                                                                            2400
                                                                              4800
```

Baudrate 38,400 is only
available on "uart2:" and "uart3:"

If an optional interface board
with at least one serial channel
is fitted, communication setup
menus for each of the channels
will be displayed.

```
                    SER-COM:              PARITY:
                    PARITY                NONE
                                            EVEN
                                              ODD
                                                MARK
                                                  SPACE
```

```
                    SER-COM:              CHAR LENGTH:
                    CHAR LENGTH           7
                                            8
```

```
                    SER-COM:              STOP BITS:
                    STOP BITS             2
                                            1
```

```
                    SER-COM:              FLOWCONTROL:          RTS/CTS:
                    FLOWCONTROL           RTS/CTS               DISABLE
                                                                  ENABLE
```

Not for RS422/485
on "uart2:"

```
                                          FLOWCONTROL:          ENQ/ACK:
                                          ENQ/ACK               DISABLE
                                                                  ENABLE
```

```
                                          FLOWCONTROL:          XON/XOFF:             DATA FROM HOST:
                                          XON/XOFF              DATA FROM HOST        ENABLE
                                                                                        DISABLE

                                                                XON/XOFF:             DATA TO HOST:
                                                                DATA TO HOST          ENABLE
                                                                                        DISABLE
```

```
                                          FLOWCONTROL:          PROT ADDR:
                                          PROT ADDR             DISABLE
                                                                  ENABLE
```

Only for RS422/485
on "uart2:"

```
                    SER-COM:              NEW LINE:
                    NEW LINE              CR/LF
                                            LF
                                              CR
```

(Enter)

```
SETUP:              DETECTION:            LABEL  <>   GAP
DETECTION           LSS ADJUST            ■
```

• Press F1/Ins key to view current value
• Press F2/Del key to decrease value 1 step
• Press F3/Esc key to increase value 1 step
• Press F4/<- key to decrease value 10 steps
• Press F5/-> key to increase value 10 steps
• Press Feed key to autoadjust the LSS and feed out 1 label.

```
                    DETECTION:            FEEDADJ:              STARTADJ:
                    FEEDADJ               STARTADJ              [0]:

                                          FEEDADJ:              STOPADJ:
                                          STOPADJ               [0]:
```

(Enter)

```
SETUP:
SERVICE
```

• Press Enter to enter the Service part (see next page).
• Press F5/-> to go back to the "Setup; Contrast" menu.
• Press Setup/Save to exit the Setup Mode.

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Setup Mode Overview, Part 2

```
SETUP:
SERVICE
  |
SETUP:            SERVICE:          MEDIA SIZE:       XSTART:
PASSWD:           MEDIA SIZE        XSTART            [0]:
Password: 1138
                                    MEDIA SIZE:       WIDTH:
                                    WIDTH             [832]:

                                    MEDIA SIZE:       LENGTH:
                                    LENGTH            [1200]:
                                          (Enter)

                  SERVICE:          MEDIA TYPE:
                  MEDIA TYPE        LABEL (w GAPS)
                                      TICKET (w MARK)
                                       TICKET (w GAPS)
                                        FIX LENGTH STRIP
                                         VAR LENGTH STRIP

                  SERVICE:          PRINT DEFS:       HEAD RESIST:
                  PRINT DEFS        HEAD RESIST       [nnn]: Measured

                                    PRINT DEFS:       PAPER TYPE:
                                    PAPER TYPE        (designation)
                                                       (designation)
                                                        (designation)

                                    PRINT DEFS:       NEW SUPPLIES:
                                    NEW SUPPLIES      #

                                    PRINT DEFS:       <PRINT> = PRINT
                                    TESTPRINT         <C>     = EXIT
                                          (Enter)

                  SERVICE:          PERFORMANCE:
                  PERFORMANCE       NORMAL
                                      HIGH
                                       ULTRA HIGH

                  SERVICE:          MEMORY ALLOC:     IMAGE BUFF SIZE:
                  MEMORY ALLOC      IMAGE BUFF SIZE   [48Kb]:

                                    MEMORY ALLOC:     REC BUF UART1:
                                    REC BUF UART1     [300]:

                                    MEMORY ALLOC:     TRANS BUF UART1:
                                    TRANS BUF UART1   [300]:

                                    MEMORY ALLOC:     REC BUF UART2:
                                    REC BUF UART2     [300]:

                                    MEMORY ALLOC:     TRANS BUF UART2:
                                    TRANS BUF UART2   [300]:

                                    MEMORY ALLOC:     REC BUF UART3:
                                    REC BUF UART3     [300]:

                                    MEMORY ALLOC:     TRANS BUF UART3:
                                    TRANS BUF UART3   [300]:
                                          (Enter)
```

Value is read only
Printhead resistance is set up
automatically at start-up.

Refer to the chapter "Selecting Paper/Ribbon"
fo a list of available setup options for direct
thermal paper and transfer ribbons.
**New setup options can be added by means of
the "New Supplies" menu, see below.**

Enter the 13-digit code number of the new
supply (thermal paper or transfer ribbon).

A series of test labels is printed in a loop.
**If printer is unable to print a test label, press F5/–>
key for a status report.**

**These menus are only displayed if an optional
interface board with at least one serial
communication channel is fitted**

• **Press F4/<– to return to the "Detection" menu in part 1.**
• **Press F5/–> key to return to "Media Size" menu.**
• **Press Setup/Save key to exit the Setup Mode.**

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Contrast

The printout contrast is set up by means of an analogous menu:

```
min CONTRAST max
        ■
```

The cursor in the menu indicates the current setup. Move the cursor to the left to decrease the blackness or to the right to increase it:

Action	EasyCoder 501 E	EasyCoder 501 SA
Increase the printout blackness	< **F5** >	< $\Rightarrow$ >
Decrease the printout blackness	< **F4** >	< $\Leftarrow$ >
Acknowledge and proceed	< **Enter** >	< **Enter** >

Serial Communication (SER-COM)
• Baudrate
• Parity
• Character Length
• Stop Bits
• Flow Control
• New Line

Press < **Enter** > repeatedly to step through all the communication setup menus. There may be more than one set of communication parameters if an optional serial interface board is fitted.

Check if the displayed parameters correspond to the protocol of the host computer or terminal and change if necessary:

Action	EasyCoder 501 E	EasyCoder 501 SA
Browse through a stack of options	< **F5** >	< $\Rightarrow$ >
Return to higher level	< **C** >	< **Clear** >
Acknowledge option and proceed	< **Enter** >	< **Enter** >

Detection
• LSS Adjustment
• Start Adjustment
• Stop Adjustment

The detection part of the Setup Mode is used for adjusting the label stop sensor and to control the paper feed.

Label stop sensor (LSS):

```
LABEL    <>    GAP
      ■
```

❑ Often it will suffice just to perform a couple of TESTFEED operations by pressing < **Feed** >, which allows the printer to auto-adjust itself. A blank label (or the equivalent) will be fed out. When the paper feed operates as expected, you can exit the LSS adjustment by pressing < **Enter** >.

❑ If you cannot make the paper feed operate properly by means of TESTFEEDs, you will have to adjust the LSS as described below. Before the LSS is adjusted, the printer must be set up for the type of paper web you intend to use, i.e. "Label (w gaps)", "Ticket (w mark)", "Ticket (w gaps) ", "Fix length strip", or "Var. length strip".

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Detection, cont'd.

❏ You can check the present value of the LSS by pressing the < **F1** > key on an *EasyCoder 501 E* or the < **Ins** > key on an *EasyCoder 501 SA*. The value will be displayed in the centre of the menu, e.g.:
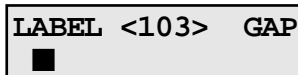
```
LABEL <103>  GAP
      ■
```

❏ Press < **F1** > or < **Ins** > again and the value disappears. This facility can be used any time during the LSS setup operation.
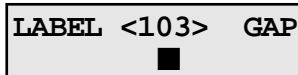
❏ *Label (w gaps):*
Put a piece of paper with backing paper between the two parts of the sensor. The cursor should appear at the left side of the menu:
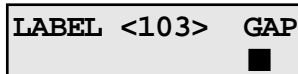
```
LABEL <103>  GAP
■
```

Put a piece of backing paper without any label into the sensor. The cursor should move to the centre of the menu:

```
LABEL <103>  GAP
        ■
```
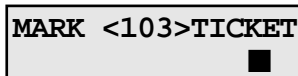
Finally remove all paper web from the sensor. The cursor should move to the right side of the menu:
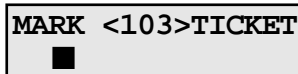
```
LABEL <103>  GAP
            ■
```

❏ *Ticket (w mark):*
Put the paper between the two parts of the sensor, making sure there is no black mark close to the LSS. The cursor should appear at the right side of the menu:

```
MARK <103>TICKET
            ■
```

Move the paper so the black mark becomes situated above the sensor. The cursor should move to the left side of the menu (the same applies when no paper is fitted):

```
MARK <103>TICKET
 ■
```

Continued!

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Detection, cont'd.

❏ *Ticket (w gaps), Fix Length Strip and Var. Length Strip:*
Put the paper between the two parts of the sensor, making sure there is no gap close to the LSS. The cursor should appear at the left side of the menu:

```
LABEL <103>  GAP
■
```

In case of tickets, move the paper so the gap becomes situated above the sensor.

In case of strip, remove the paper completely.

In both cases, the cursor should move to the left side of the menu:

```
LABEL <103>  GAP
           ■
```

❏ If the cursor is not situated correctly, the LSS must be adjusted.

❏ The LSS emitter can be set to a value between 0 and 127. Try to find the correct level by means of the following keys:
< **F2** > or < **Del** > decreases the level 1 step.
< **F3** > or < **Esc** > increases the level 1 step.
< **F4** > or < ⇐ > decreases the level 10 steps.
< **F5** > or < ⇒ > increases the level 10 steps.
Keep trying until you find the right level.

❏ When the adjustment looks right, press < **Feed** >. This will produce a TESTFEED, i.e. it will allow the printer feed out one label, ticket, tag or piece of strip in order to adjust itself and to allow you to check that the paper feed works correctly. At least two TESTFEEDs should be produced before you go on.

> **CAUTION!**
> **The electronics compartment, where the LSS potentiometer is situated, contains components and wires with dangerous voltage!**

❏ If you cannot make the LSS work correctly by following the instructions above, you may – as a last resort – need to adjust the potentiometer on the CPU board, see the chapter *"Electronics; Potentiometers"* later in this manual. Read the instructions carefully before starting, since you will be working in a part of the printer with live high-voltage components!

❏ Try different combinations of potentiometer settings and LSS levels until the cursor is positioned correctly.

❏ When you are satisfied that the LSS is set up correctly, press < **Enter** >. That will set the LSS and let you proceed to next part of the Detection setup.

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Detection, cont'd.

❏ The following table summarizes the keys used for setting up the LSS adjustment:

Action	EasyCoder 501 E	EasyCoder 501 SA
View current value	< **F1** >	< **Ins** >
Decrease level 1 step	< **F2** >	< **Del** >
Increase level 1 step	< **F3** >	< **Esc** >
Decrease level 10 steps	< **F4** >	< ⇐ >
Increase level 10 steps	< **F5** >	< ⇒ >
Testfeed operation	< **Feed** >	< **Feed** >
Acknowledge setup and proceed	< **Enter** >	< **Enter** >

Feed adjustment:

```
STARTADJ:
[0]:
```

The present value of the **start adjustment** is displayed within brackets. Accept the value by pressing < **Enter** >, or type a new value and press < **Enter** >.

```
STOPADJ:
[0]:
```

The present value of the **stop adjustment** is displayed within brackets. Accept the value by pressing < **Enter** >, or type a new value and press < **Enter** >.

Action	EasyCoder 501 E	EasyCoder 501 SA
New value	numeric keys	numeric keys
Negative value	< **.** >	< **.** >
Acknowledge setup and proceed	< **Enter** >	< **Enter** >

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Service

The Service part of the Setup Mode is protected by a password to avoid unauthorized access. To enter Service, press < **Enter** >. A menu asking for a password is displayed:

```
SETUP:
PASSWD:
```

Using the numeric keys, type the password **1138** and press < **Enter** >. When typing the password, the digits will be indicated by stars (****) in the display as they are entered.

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter Service	< **Enter** >	< **Enter** >
Enter password	**1138** + < **Enter** >	**1138** + < **Enter** >
Return to "Contrast" menu	< **F5** >	< ⇒ >
Exit Setup Mode	< **Setup** >	< **Save** >

Media Size
• X-start
• Width
• Length

Three menus will successively be displayed. In each menu, the current setup value is displayed within brackets, e.g.:

```
XSTART:
[0]:
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter new value	Numeric keys	Numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

```
WIDTH:
[832]:
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter new value	Numeric keys	Numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

```
LENGTH:
[1200]:
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter new value	Numeric keys	Numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Media Type

A stack of five menus will be displayed, with the current media type shown first:
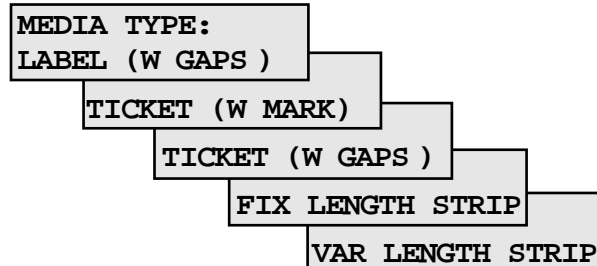
```
MEDIA TYPE:
LABEL (W GAPS )
        TICKET (W MARK)
                TICKET (W GAPS )
                        FIX LENGTH STRIP
                                VAR LENGTH STRIP
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Browse to next option	< **F5** >	< ⇒ >
Select option and proceed	< **Enter** >	< **Enter** >

Print Defines
• Printhead Resistance
• Paper Type
• New Supplies
• Testprint

Printhead Resistance

```
HEAD RESIST
[676]: Measured
```

The printhead resistance is automatically measured and set at startup. The last measured value is displayed within brackets.

Action	EasyCoder 501 E	EasyCoder 501 SA
Proceed	< **Enter** >	< **Enter** >

Paper Type

A number of direct thermal paper and thermal transfer ribbon designations are displayed in a stack of menus, e.g.:

```
PAPER TYPE:
UBI HP 20
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Browse to next option	< **F5** >	< ⇒ >
Select option and proceed	< **Enter** >	< **Enter** >

Note:

Any attempt to print while the printer is loaded with thermal transfer ribbon but set up for direct thermal paper, or vice versa, will result in an error condition. In printers without any thermal transfer mechanism, only direct thermal paper options will be displayed.

Continued!

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Print Defines, cont'd.

New Supplies

Direct thermal papers and thermal transfer ribbons, other than those included as standard options in the previous menu, can be selected by entering a 13-digit code provided by the manufacturer:

```
NEW SUPPLIES:
#
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter code number	Numeric keys	Numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

Testprint

A series of test labels can be printed. See illustrations in the chapter *"Setup Parameters"* earlier in this manual.

```
<PRINT> = PRINT
<C>     = EXIT
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Print a new Test Label	< **Print** >	< **Print** >
Check status	< **F5** >	< ⇒ >
Exit and proceed	< **C** > or < **Enter** >	< **Clear** > or < **Enter** >

"Check status" reports five possible error conditions:
• Printhead lifted.
• Label not removed.
• Printer out of paper.
• Printer out of transfer ribbon.
• Printhead voltage too high.

A text in the display will inform you if any of these error conditions has occurred. Otherwise the text *"Error stat: All systems: Go!"* is displayed.

Performance

A stack of three menus is displayed:

```
PERFORMANCE:
NORMAL
    HIGH
        ULTRA HIGH
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Browse to next option	< **F5** >	< ⇒ >
Select option and proceed	< **Enter** >	< **Enter** >

SETTING UP EASYCODER 501 E & 501 SA, cont'd.

Memory Allocation

A number of menus will be displayed, depending on with how many serial communication channels the printer is equipped. In each menu, the current size of the buffer is indicated within brackets, e.g.:

```
IMAGE BUFF SIZE:
[48Kb]:
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter new value	numeric keys	numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

```
REC BUF UART1:
[300]:
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter new value	numeric keys	numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

```
TRANS BUF UART1:
[300]:
```

Action	EasyCoder 501 E	EasyCoder 501 SA
Enter new value	numeric keys	numeric keys
Acknowledge and proceed	< **Enter** >	< **Enter** >

Leaving the Setup Mode

The memory allocation menus conclude the Setup Mode. Press < **C** > or < **Clear** > to return to the main Memory Allocation menu. There you have three options:

Action	EasyCoder 501 E	EasyCoder 501 SA
Return to "Service: Media size" menu	< **F5** >	< ⇒ >
Return to "Setup; Service" menu	< **C** >	< **Clear** >
Exit Setup Mode	< **Setup** >	< **Save** >

If you have entered the Setup Mode from *UBI Shell* or the *UBI Stand-Alone* program, you will return to the program in question when you press < **Setup** > or < **Save** > respectively.

If you have entered the Setup Mode from the immediate mode of *UBI Fingerprint*, you will return there when you press the < **Setup** > key.

Note that anywhere in the Setup Mode, you can exit by pressing < **Setup** > or < **Save** >.

PRINTING PRINCIPLES

General Information

The printing is produced by the thermal printhead, which consists of a line of very small, closely spaced resistors on a ceramic tile fitted across the paper web. When a current is led through the resistors, commonly called "dots," these will be heated very quickly. The heating is controlled by a powerful 32-bit microprocessor. When the current is shut off, the dots cool down just as fast.

Direct Thermal Printing

All *EasyCoder 501* printer models can use the direct thermal printing method. The method requires a special paper coated with a thin layer of heat-sensitive chemicals. As the paper is fed past the dots, the heat from the dots will make the chemicals react, producing a dark salt, which makes up the imprint under each dot.

Thermal Transfer Printing

The thermal transfer printing method requires that the printer is fitted with a special mechanism in which a special "ink"-coated transfer ribbon is fed between the printhead and the receiving face material, e.g. plain paper.

When the ribbon is heated by the dots on the printhead, the "ink" melts and sticks to the receiving face material (e.g. paper), where the ink immediately becomes solid again, producing a black spot. In fact, the "ink" is a mixture of colour pigment and wax or resin that melts at temperatures well above room temperature. Thus, a transfer ribbon will not smudge the fingers of the operator, neither before nor after printing. Printed labels do not smudge other objects, but if an unfortunate combination of ribbon type and face material is used, the printout may become smeared by extensive rubbing.

The thermal transfer method allows a wide range of face materials to be printed upon, e.g. papers, boards, plastics, foils etc., provided a transfer ribbon suited for the face material in question is used.

PRINTING PRINCIPLES, cont'd.

Switching between Printing Methods

Provided the printer is fitted with a thermal transfer ribbon mechanism, you may choose printing method at will.

❏ Set up the printer for the correct paper or ribbon type in the Setup Mode (Service\Print Defs\Paper Type).

For setup instructions, please refer to the chapters *"Setting up EasyCoder 501"* and *"Setting up EasyCoder 501 E & 501 SA"* earlier in this manual.

Since direct thermal printing requires more heat that thermal transfer printing, there is a safeguard against incorrect setup:

• If the printer is loaded with thermal transfer ribbon but set up for direct thermal printing, error condition 1058 *"Transfer ribbon fitted"* will occur at printing.

• If the printer is not loaded with thermal transfer ribbon but set up for thermal transfer printing, error condition 1027 *"Out of transfer ribbon"* will occur at printing.

❏ Adjust the printhead pressure. Direct thermal printing requires more pressure than thermal transfer printing. Do not use more pressure than necessary, since it may reduce the life of the printhead and – in case of thermal transfer printing – cause ribbon wrinkling. Please refer to chapter *"Printing Adjustments"* on next page.

❏ Load a supply of direct thermal paper only, or thermal transfer ribbon plus a suitable face material. Please refer to the Operator's Guide or User's Manual for loading instructions.

❏ Print a few labels, preferably test labels (see chapter *"Setup Parameters, Print Defines"* earlier in this manual) and check that the printing is distinct and even across the label web. If not, readjust the printhead pressure (see next page).

❏ In case of thermal transfer printing, check that the ribbon does not become wrinkled. Else, adjust the ribbon guide plate as described in next chapter.

❏ In case of peel-off operation, check that the backing paper is tight and flat after it has passed the dispenser edge. If not, adjust the dispenser edge.

PRINTING PRINCIPLES, cont'd.

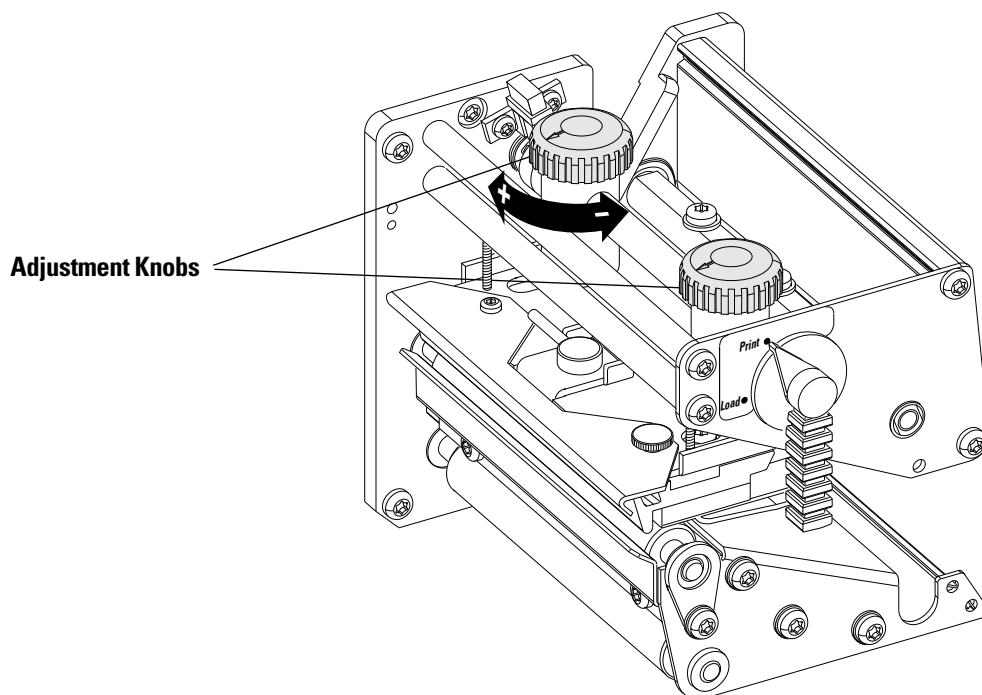**Printing Adjustments**

Printhead Pressure:

At printing, the thermal printhead must be pressed against the pressing roller so the heat can be transferred to the ribbon or thermal paper. There must also be enough pressure to provide a sufficient amount of friction between the paper and the pressing roller that drives the paper. Too weak pressure gives a weak printout quality, whereas too strong pressure may cause ribbon wrinkling and unnecessary wear of the printhead.

The pressure is factory adjusted, but special applications or a change between printing methods may require readjustment using the trial-and-error method. Do not use more pressure than necessary to obtain the desired printout quality.

The print unit is fitted with two adjustable spring packages, which allow the pressure to be set by turning the knobs:

• Turn the knobs clockwise to increase the pressure.
• Turn the knobs counter-clockwise to decrease the pressure.

At each quarter of a turn, the resistance increases and a clicking sound can be heard.

Adjustment Knobs

Continued!

PRINTING PRINCIPLES, cont'd.

Printing Adjustments, cont'd.

Printhead Pressure, cont'd:

The required pressure may vary between printing methods and face materials of different thickness. Direct thermal printing may require more pressure than thermal transfer printing, and thicker face materials require more pressure than thinner.

Make a **rough** adjustment like this:

• Turn **both** adjustment knobs clockwise as far as they go to maximum pressure.

• Release the pressure of the **inner** spring package by turning the knob 2 $\frac{1}{4}$ turns counter-clockwise (9 clicks).

• Release the pressure of the **outer** spring package by turning the knob 2 turns counter-clockwise (8 clicks).

Fine-adjust the pressure by turning the outer knob, while retaining the setting of the inner knob. If the desired result cannot be obtained, increase or decrease the pressure by turning both knobs a quarter of a turn in the same direction, then fine-adjust the outer knob.

PRINTING PRINCIPLES, cont'd.

Printing Adjustments, cont'd.

Ribbon Guide Plate :

The ribbon guide plate is used to avoid ribbon wrinkling caused by lateral travel. The ribbon guide plate is factory-adjusted. Should the adjustment be lost, the guide plate should initially be adjusted in parallel with the front edge of the printhead adapter plate.

Obviously, the ribbon guide plate does not need to be adjusted in case of direct thermal printing.

If the ribbon becomes wrinkled, a few checks should be performed before the guide plate is readjusted:

• Is the printhead pressure properly adjusted?

• Is the green paper guide ring correctly positioned?

• Is there anything that may interfere with the transfer ribbon, e.g. the printhead cables.

If the wrinkling problem remains, proceed as follows:

• If the ribbon travels outwards, loosen the knurled nut and press the outer end of the guide plate slightly backward.

• If the ribbon travels inwards, loosen the knurled nut and press the outer end of the guide plate slightly forward.

• Tighten the nut and test by printing several labels. Readjust if necessary.

Note that readjustment may be required when switching between peel-off and tear-off/cut-off operation.

Ribbon Guide Plate

Knurled Nut
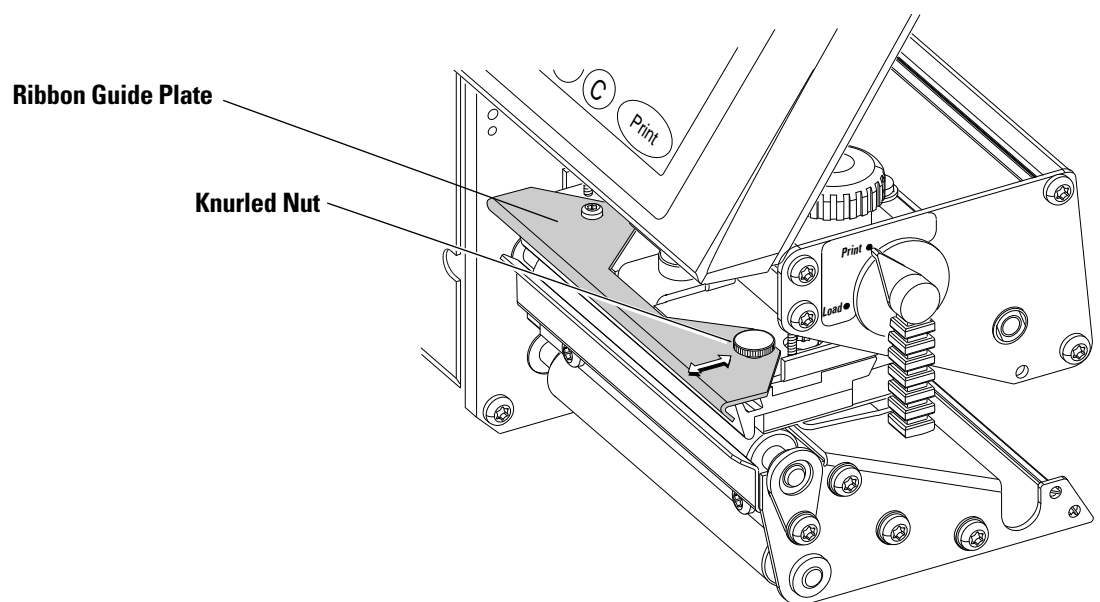
PRINTING PRINCIPLES, cont'd.

Dot Size

The basis for all measures and positioning in the *UBI Fingerprint* programming language is the size of printhead dots. For example, in an 8 dots/mm printhead, each dot has a nominal size of 0.125 mm (4.9 mils). This means that a heated dot under standardized conditions will produce a black spot which has a diameter of 0.125 mm. Depending on dot temperature, exposure time, paper and ribbon characteristics etc., the spot may actually be somewhat smaller (weak print) or larger (black print), but that does not affect the calculation of distances, sizes and positions.

The 8 dots/mm (203.2 dpi) printhead contains 832 dots, which gives a maximum print width of 104 mm (4.095").

The 11.81 dots/mm (300 dpi) printhead contains 1280 dots, which gives a maximum print width of 108.3 mm (4.264").

In case of a printhead density of 8 dots/mm (203.2 dpi), the same unit of measure (dots) can be used both across and along the paper feed direction.

In case of 11.81 dots/mm printers (300 dpi), there is a slight difference between measures across and along the paper feed direction (PFD). Although the same designation (dot) is used, a certain number of dots **along** the paper feed direction represents a shorter distance than the same number of dots **across** the paper feed direction, see table below. The reason is that the medium density printhead and the paper feed mechanism are designed according to metric standards, whereas the high density printhead is designed to be exactly 300 dots/inch, which is not compensated for by a non-metric paper feed. For most practical purposes, the difference will not be noticeable.

Conversion Table

Density:	8 dots/mm 203.2 dpi	11.81 dots/mm 300 dpi	
Direction:	**Both directions**	**Across PFD**	**Along PFD**
Dot size (mm):	0.125	0.085	0.083
Dot size (mils):	4.92	3.33	3.28
Dot size (inches):	0.00492	0.00333	0.00328
1 mm:	8 dots	11.81 dots	12 dots
1 inch:	203.2 dots	300 dots	304.8 dots
1/16 inch:	12.7 dots	18.8 dots	19.1 dots

DIRECT THERMAL PAPER

General Information

UBI has specified two quality grades of **direct thermal** paper:

❑ *Premium Quality*, which sets high demands on printout quality and resistance against moisture, high temperature, UV-light, plasticisers and oil.

❑ *Economy Quality*, which gives slightly lower printout quality and is less resistant to moisture, plasticisers and vegetable oil. In all other respects, it is equal to *Premium Quality*.

Pre-printed Paper

When using pre-printed thermal paper, we strongly advice against using background pre-print on such areas that are intended for thermal printing. Not only may the readability of bar codes be impaired by an inappropriate background colour, but the pre-print ink may also be too opaque or have such an insulating effect, that the legibility of text will be insufficient.

Make sure that the pre-print ink does not contain any titanium dioxide (a white agent), which has a strong grinding effect that may wear out the printhead prematurely. The same applies to some types of fluorescent ink. If possible, avoid ink containing sodium, chlorine and potassium, since these agents may adversely affect the printhead through chemical corrosion.

If pre-printing cannot be avoided on areas intended for thermal printing, the ink or varnish must be resistant to heat up to 225˚C (+437˚F) for at least 1 second at 2.0 kgs/cm^2. Otherwise, the ink will melt and clog the printhead.

TRANSFER RIBBON AND RECEIVING FACE MATERIAL

General Information

In principle, the thermal transfer method allows printing to be applied on almost any receiving face material that can be fed through the printer. In reality, a combination of the characteristics of the transfer ribbon and the face material (paper, plastic, vinyl etc.) decides the readability and the durability of the printout. For example, a coarse surface will give a less readable printout for high-density bar codes. Smooth but slippery surfaces, like vinyl or glossy paper, may produce a highly readable but less durable printout, which may require a primer coating.

A general rule, which applies to all thermal printers regardless of brand, is that "ladder-style" bar codes set higher demands on both transfer ribbon and receiving face material.

Transfer Ribbon Types

UBI offers three families of transfer ribbons optimized for different purposes:

GP *General Purpose transfer ribbon* allows high speed printing and gives a good printout, but is somewhat sensitive to smearing, especially on smooth surfaces. It may be the best choice for coarse surfaces, like Vellum paper.

HP *High Performance transfer ribbon* allows high speed printing and gives a highly readable and defined printout on most face materials with smooth surfaces. It has a good "smear resistance" and is most suitable for intricate logotypes and images on Matt Coated/Transfer Supreme face materials.

HR *High Resistance transfer ribbon* gives an extremely durable printout, which is resistant to most chemical agents and high temperatures. However, this transfer ribbon sets high demands on the receiving face material, which must be very smooth, especially for the printing of ladder-style bar codes.

The use of HR ribbons requires the print speed and the energy supplied by the printhead to be controlled with great accuracy according to the receiving face material. Custom-made setup options adapted for special application can also be created. Consult your *UBI* distributor.

Receiving Face Materials

There are numerous paper brands and other face materials, which can be used. Many offers a higher printout quality, but at the expense of a higher price. Others may be cheaper, but less suited for high-density printing. The overall economy and required printout quality, print speed, durability and other characteristics should result in a combination between transfer ribbon and face material which gives the best result for each application. Consult your *UBI* distributor.

SELECTING PAPER/RIBBON

Setup Options

The printer can be set for various types of direct thermal papers, or combinations of transfer ribbons and receiving face materials, by means of the setup parameter *"Paper Type"*.

The printer is fitted with a number of standard thermal paper and transfer ribbon options, as listed below.

Furthermore, the *"New Supplies"* setup parameter allows additional options to be selected by a 13-digit code. Once selected, it can be reselected as a *"Paper Type"* option using the first 4 digits of its code number. The first digit indicates direct thermal paper (0) or thermal transfer ribbon (1).

In printers not fitted with any thermal transfer ribbon mechanism, only direct thermal paper options will be displayed.

Thermal Transfer Printing

STANDARD SETUP OPTIONS		
Ribbon Type	**Receiving Face Material**	**Setup Option**
General Purpose	Vellum Paper Matt Coated/Transfer Supreme	**UBI GP 10** **UBI GP 11**
High Performance	Matt Coated/Transfer Supreme Semi Gloss White Paper	**UBI HP 20** **UBI HP 21**
High Resistance	Matt Synthetic Gloss Synthetic	**UBI HR 30** **UBI HR 31**

Standard Transfer Ribbons from UBI
(other widths available on special request)

GENERAL PURPOSE	Length 450 m (1475 ft.)		
Width:	58 mm (2.28")	88 mm (3.47")	110 mm (4.33")
Part Number:	1-970645-20	1-970645-10	1-970645-01

HIGH PERFORMANCE	Length 450 m (1475 ft.)		
Width:	60 mm (2.36")	90 mm (3.54")	110 mm (4.33")
Part Number:	1-970646-20	1-970646-10	1-970646-01

HIGH RESISTANCE	Length 450 m (1475 ft.)		
Width:	58 mm (2.28")	88 mm (3.47")	110 mm (4.33")
Part Number:	–	–	1-970647-02

Printhead Warranty:

The use of any thermal transfer ribbon, other than those supplied by *UBI*, will invalidate the printhead warranty. *UBI* thermal transfer ribbons are engineered specifically for the printhead of *EasyCoder 501*.

SELECTING PAPER/RIBBON, cont'd.

Direct Thermal Printing

STANDARD SETUP OPTIONS			
Supplier	**Type**	**Quality**	**Setup Option**
Kanzan[1]	KL-46B	Top coated	**KANZAKI 86S**
Ricoh	130 LAB/LAM	Top coated	**RICOH 130LAB/LAM**
UBI	Economy Premium	Non top coated Top coated	**UBI DT 110** **UBI DT 110**

The paper settings above are optimized for bar code printing. This may cause an impression of a somewhat weak printout for pure text and image printing. Increasing the energy to the printhead will make the printout blacker at the expense of the quality of bar codes.

When extra black printout is desired, use one of the following setup options (direct thermal printing only):

UBI DT 110+	15% more energy to printhead.
UBI DT 110++	30% more energy to printhead. 8 dots/mm only

Due to the increased amount of energy to the printhead, a more frequent cleaning of the printhead is recommended if preprint or varnishes are used on the thermal paper in connection with these setup options.

In addition to the standard options above, there are some thermal paper with similar characteristics, which also can be used, although *UBI* does not guarantee the same printout quality, especially not at vertical bar code printing ("ladder style").

Supplier	**Type**	**Quality**	**Setup option**
Appleton	T1062A T0972	Top coated Top coated	**UBI DT 110** **UBI DT 120**
Blümberg	T1968 SN	Non top coated	**UBI DT 110**
Fasson US	90HC	Top coated	**UBI DT 110**
Jujo	AP62KM-A TP62KM-A6 TP63KS	Non top coated Non top coated Semi top coated	**UBI DT 110** **UBI DT 110** **UBI DT 120**
Kanzaki	KPT-86RS	Top coated[2]	**UBI DT 120**
Ricoh	130IAB 130NA 130LEB-E	Top coated[2] Top coated[3] Non top coated	**UBI DT 110** **UBI DT 110** **UBI DT 110**
Smith & McLaurin	T953	Non top coated	**UBI DT 110**
Tomoegawa	LPB-70BT	Top coated	**UBI DT 120**

Printhead Warranty:

The use of direct thermal papers, other than those specified above, may result in premature wear-out of the printhead and the printhead warranty will not apply.
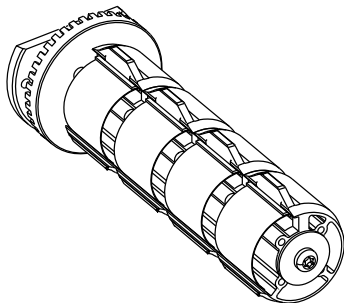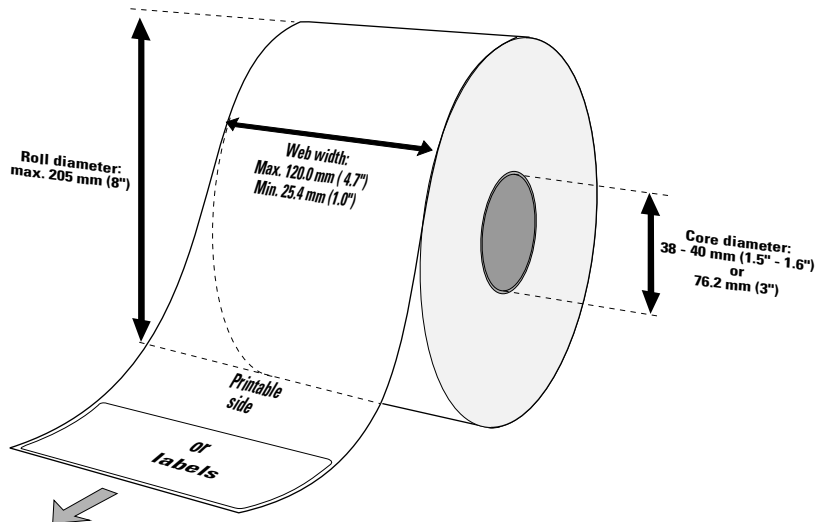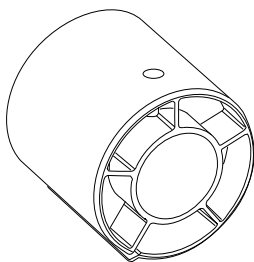
[1]. *Same as Kanzaki KPT-86S*
[2]. *IR-readable*
[3]. *Tag 150 g/m^2*

PAPER DIMENSIONS

Roll Size

Bobbin (Ø 38 mm/1.5")

Adapter (Ø 76 mm/3")

Note:
175 μm is the recommended maximum thickness. Thicker web may be used at the possible expense of an impaired printout quality. However, the stiffness is also important. A stiff web limits the maximum thickness and vice versa.

Restrictions applying to paper rolls fitted inside the printer:

Core:
Diameter w/o adapter .. :   38–40 mm   (1.5–1.6")
Diameter w. adapter .... :   76 mm   (3")
Width .... :   Must not protrude outside the web.

Warning!
The web must not be attached the core in such a manner that the printer cannot pull the end of the web free from the core. Else, the thermal transfer ribbon may be damaged.

Roll:
Max. diameter .... :   205 mm   (8.07")
Max. width .... :   120 mm   (4.72")
Min. width .... :   25.4 mm   (1.0")
Max. web thickness ..... :   175 μm   (0.007")   *see note!*

We recommend that a paper roll fitted inside the printer should be wound with the labels, printable surface or thermal coating facing outwards.

For paper supply outside the printer, e.g. fan-folds or external paper roll, the only restriction to be observed is the width and thickness of the web, which should be the same as for an internal paper roll.

Important! Any external paper supply should be well protected against sand, grit etc. Even very small but hard foreign particles may cause severe harm to the delicate printhead.

PAPER DIMENSIONS, cont'd.

Non-Adhesive Strip

← a → **Web Width:**
Maximum .... :   120.0 mm   (4.72")
Minimum .... :   25.4 mm   (1.00")

PAPER DIMENSIONS, cont'd.

Self-Adhesive Strip

$\leftarrow$ **a** $\rightarrow$ **Web Width**
(including backing paper):
Maximum ....:   120.0 mm   (4.72")
Minimum ....:   25.4 mm   (1.00")

The backing paper must not extend more than a total of 1.6 mm (0.06") outside the paper and should protrude equally on both sides.

$\leftarrow$ **b** $\rightarrow$ **Paper Width**
(excluding backing paper):
Maximum ....:   118.4 mm   (4.66")
Minimum ....:   23.8 mm   (0.94")

This type of paper is not suitable for use with a paper cutter.

a

b

**SELF-ADHESIVE
STRIP**

c   c

PAPER DIMENSIONS, cont'd.

Self-Adhesive Labels
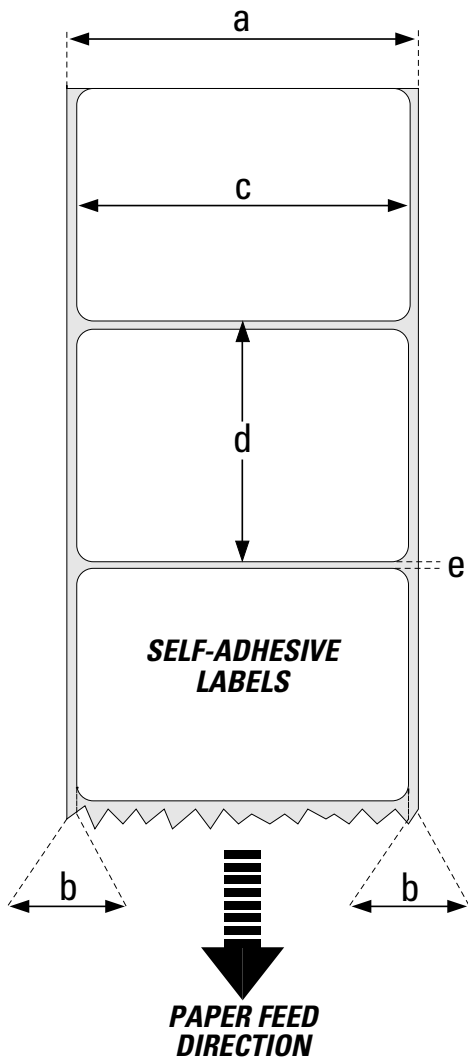
← **a** → **Web Width**
(including backing paper):
Maximum .... :   120.0 mm   (4.72")
Minimum .... :   25.4 mm   (1.00")

← **b** → **Backing Paper**
The backing paper must not extend more than a total of 1.6 mm (0.06") outside the paper and should protrude equally on both sides.
Minimum transparency: 40% (DIN 53147).

← **c** → **Label Width**
(excluding backing paper):
Maximum .... :   118.4 mm   (4.66")
Minimum .... :   23.8 mm   (0.94")

← **d** → **Label Length:**
Max. label length (8 dots/mm)[1] .... :   1875 mm   (73.8")
Max. label length (11.81 dots/mm)[1] .... :   1250 mm   (49.2")
Min. label length (all) .... :   10 mm   (0.39")
Max. printable length (8 dots/mm) .... :   1250 mm   (49.2")
Max. printable length (11.81 dots/mm) ...... :   833 mm   (32.8")

← **e** → **Label Gap:**
Maximum .... :   10.0 mm   (0.39")
Recommended .... :   1.6 mm   (0.06")
Minimum .... :   1.2 mm   (0.05")

The adjustable label stop sensor must be able to detect the extreme front and rear edges of the labels. Therefore, do not use larger inner corner radii than can be compensated for by adjusting the sensor's position, i.e. ≈ 50 mm (1.97").

SELF-ADHESIVE LABELS

PAPER FEED DIRECTION

[1]*. The last third of a label with maximum length cannot be used for printing! Also see "Max. printable length".*

PAPER DIMENSIONS, cont'd.

Tickets with Gap

a

b

←c→

f

←d→

e

TICKETS & TAGS

PAPER FEED DIRECTION
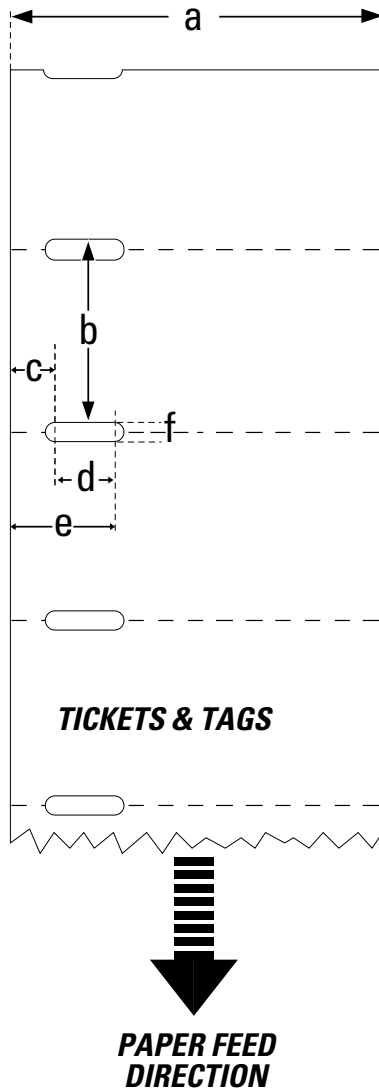
← a → Web Width:

Maximum .... :	120.0 mm	(4.72")
Minimum .... :	25.4 mm	(1.00")

← b → Copy Length:

Max. length between slots (8 dots/mm)[1] ..... :	1875 mm	(73.8")
Max. length betw. slots (11.81 dots/mm)[1] ... :	1250 mm	(49.2")
Min. length between slots (all) .... :	10 mm	(0.39")
Max. printable length (8 dots/mm) .... :	1250 mm	(49.2")
Max. printable length (11.81 dots/mm) ...... :	833 mm	(32.8")

← c → Detection Slit Start:
The restriction of the minimum detection slit length must be observed and the slit must not break the inner edge of the web.

← d → Detection Slit Length:
The length of the detection slit (excluding corner radii) must be:

Minimum .... :	5.0 mm	(0.20")

← e → Detection Slit End:
Provided the restrictions of the minimum slit length and slit start are observed, the distance from the inner edge of the web to the outer end of the slit (excluding corner radius) may be:

Maximum .... :	50.0 mm	(1.97")

← f → Detection Slit Height:

Maximum .... :	10.0 mm	(0.39")
Recommended .... :	1.6 mm	(0.06")
Minimum .... :	1.2 mm	(0.05")

It is recommended not to allow possible perforation to break the edges of the web. Else there is a small risk that the web may be partly separated before printing, causing a paper jam.

[1]*/. The last third of a ticket or tag with maximum length cannot be used for printing! Also see "Max. printable length".*

PAPER DIMENSIONS, cont'd.

Tickets with Black Mark

TICKETS

**PAPER FEED
DIRECTION**
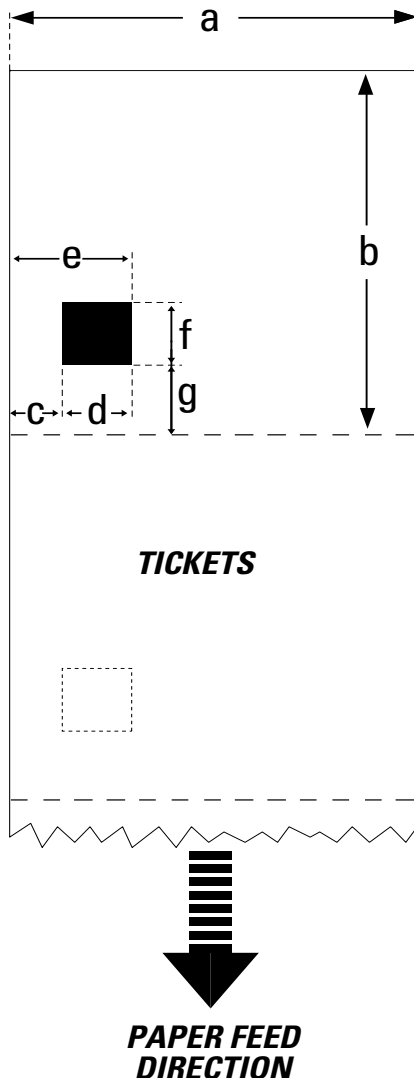
← a → **Web Width:**

Maximum .... :	120.0 mm	(4.72")
Minimum .... :	25.4 mm	(1.00")

← b → **Copy Length:**

Max. length (8 dots/mm)[1] .... :	1875 mm	(73.8")
Max. length (11.81 dots/mm)[1] .... :	1250 mm	(49.2")
Min. length (all) .... :	20 mm	(0.8")
Max. printable length (8 dots/mm) .... :	1250 mm	(49.2")
Max. printable length (11.81 dots/mm) ...... :	833 mm	(32.8")

← c → **Black Mark Offset**:

Max. offset .... :	40 mm	(1.57")
Min. offset .... :	0 mm	(0.0")

← d → **Black Mark Width**:
The detectable width of the black mark must be:

Minimum .... :	10 mm	(0.4")

← e → **Black Mark End**:
No restriction, but the LSS cannot detect the mark more than 50 mm (1.97") from the inner edge of the paper.

← f → **Black Mark Height:**

Commonly used height .... :	12.5 mm	(0.5")
Minimum .... :	5.0 mm	(0.2")

← g → **Black Mark Y-Position:**
It is recommended to place the black mark as close to the front edge of the ticket as possible and use a negative Stop Adjust value to control the paper feed, so the tickets can be properly torn or cut off (see chapter "Setup Parameters").

It is recommended not to allow possible perforation to break the edges of the web. Else there is a small risk that the web may be partly separated before printing, causing a paper jam.

Important!
*Preprint that may **interfere** with the detection of the black mark should be avoided on the back of the paper. However, the LBLCOND statement allows the sensor to be temporarily disabled during a certain amount of paper feed in order to avoid unintentional detection, see UBI Fingerprint manuals.*

The mark should be non-reflective carbon black on a whitish background.

[1]*/. The last third of a ticket or tag with maximum length cannot be used for printing! Also see "Max. printable length".*

MEMORY CARD ADAPTER

Memory Card Types

The printer's Read-Only Memory ("rom:") or Random Access Memory ("ram:") can be supplemented by memory cards complying with the **JEIDA-4** standard and with a maximum size of 2 Mbytes.

The printer must be equipped with an optional memory card adapter inside the front lid. Such an adapter can either be bought as a kit or be factory fitted.

Non DOS-formatted memory cards are available in two types, OTPROM (One-Time Programmable Read-Only Memory) or SRAM (Static Random Access Memory), each in several sizes in regard of memory capacity, see below.

• **OTPROM** cards can only be **read** by the *UBI Fingerprint* software after being preprogrammed using e.g. the *UBI Configuration* program. Once programmed, they cannot reprogrammed.

• **SRAM** cards may be used the same way as OTPROM cards. The files in such a card are regarded as an integrated part of the printer's ROM memory and can be listed using the statement FILES "rom:".

DOS formatted memory cards are always of SRAM-type and can both be read from and written to, i.e. they will work almost like a floppy disk. Files in a DOS-formatted card are addressed by adding "card1:" in front of the name of the file. The statement FILES "card1:" lists all files in the currently inserted card. Unformatted SRAM cards can be DOS-formatted in the printer using the FORMAT statement.

All SRAM memory cards require internal 3V lithium batteries (coin type) to retain their content. Note that there is no consumption of battery voltage as long as the card is inserted in a switched-on printer. A few minutes are allowed for battery replacement without any loss of data. Refer to the manufacturer's specifications.

MEMORY CARD ADAPTER, cont'd.

Fitting a Memory Card

> **IMPORTANT!**
> **The printer must be OFF when the memory card is inserted or removed.**

❏ Turn off the power to the printer and open the front lid.

❏ In case of non DOS-formatted memory card, check that the protection switch is set to *Write Protect*. (The location of the switch varies between different brands). This does **not** apply to DOS-formatted memory cards!
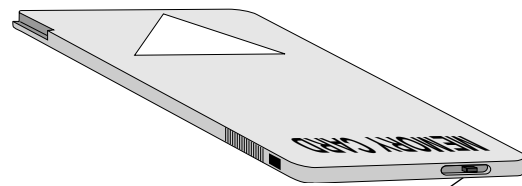
Protection Switch

❏ Insert the memory card into its adapter as illustrated below. Make sure that the manufacturer's logotype on the memory card is facing upwards.
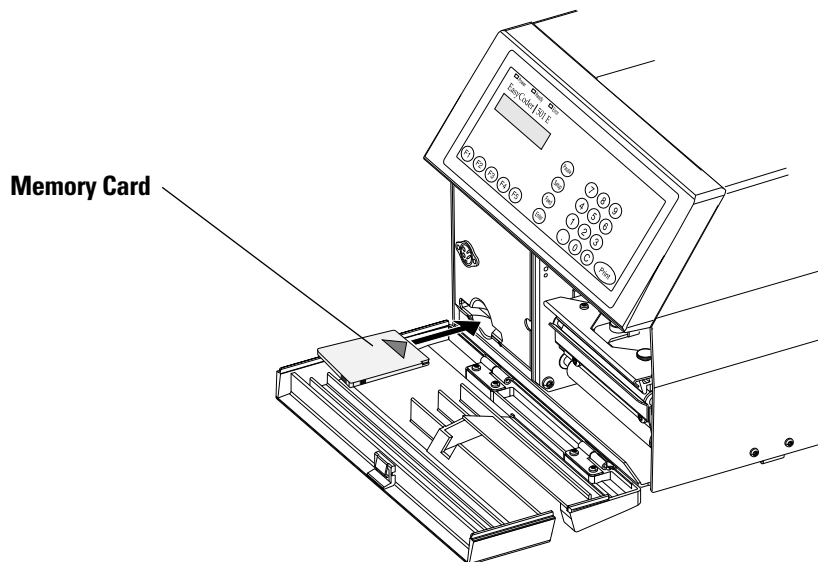
Memory Card

❏ Press firmly inwards so the pins in the adapter engage the corresponding slots in the memory card.

❏ Turn on the power again and close the front lid.

Removing a Memory Card

❏ Before removing the memory card, turn off the power.

❏ Open the front lid and pull the card straight out.

❏ Close the front lid and turn on the power again.

LABEL-TAKEN SENSOR

General Information

The Label-Taken Sensor (LTS) is a device, which enables the printer's software to detect if the latest printed label, ticket, tag etc. has been removed before printing another copy.

The label-taken sensor is usually factory-fitted, but it is also available as a kit for upgrading of existing printers. It cannot be fitted in combination with a paper cutter.

The label-taken sensor consists of a photoelectric sensor with a bracket and a connection cable. The sensor is fitted inside the front door, see illustration below.

Label-Taken Sensor
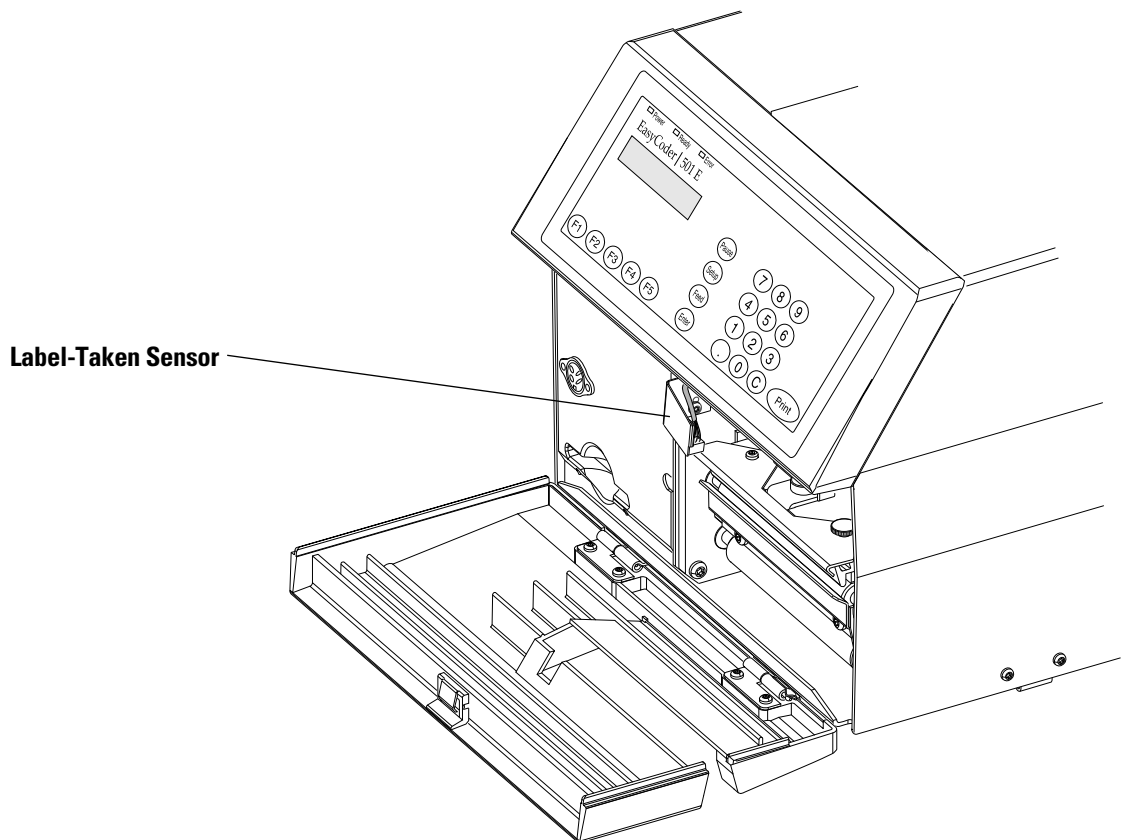
The photoelectric sensor emits a narrow beam of light, which will be reflected back to the sensor by any label, ticket, tag, piece of strip or backing paper, that has not been removed from the outfeed area. A prerequisite is that the web is fed out along the inner wall of the printer.

The sensitivity can be adjusted by means of a potentiometer, as described on next page.

LABEL-TAKEN SENSOR, cont'd.

Adjusting the Sensitivity

❑ The sensitivity of the label-taken sensor can be adjusted by means of a potentiometer situated on the CPU board, as described in the chapter *"Electronics; Potentiometers"* later in this manual[1].

CAUTION!
Since the adjustment must be performed with the power on, take utmost care to avoid any risk of electrical shock or short-circuits. Only use a non-conductive screwdriver and keep the fingers away from the CPU board and the area behind it, where the mains inlet and mains switch are situated.

❑ You can adjust the potentiometer randomly and check if it is working properly by trying to print a label without removing the previous one. Also check that you can print a label when there is no label left under the LTS. Use the trial-and-error method until the LTS works properly.

❑ Another way is to make a simple *UBI Fingerprint* program that checks the printer's status using the PRSTAT function (also see *UBI Fingerprint* manuals). Here is an example on how such a program can be made:

```
10    BREAK 1,88
20    BREAK 1 ON
30    ON BREAK 1 GOSUB 1000
40    FORMFEED
50    IF (PRSTAT AND 2) THEN BEEP
60    GOTO 50
70    END
1000 BREAK 1 OFF
1010 GOTO 70
RUN
```

You can break this program by transmitting the character X (ASCII 88 decimal) on the standard interface "uart1:".

• Leave the label, ticket etc. in the outfeed slot.
• The sensor is properly adjusted when the printer beeps continuously. Turn the potentiometer screw a quarter of a turn in each direction. The beeping should not stop.
• Remove the label and the beeping should cease at once.
• If necessary, adjust the potentiometer until the label-taken sensor works as described above.
• When adjusting the potentiometer, always create a safety-margin by turning the adjustment screw a quarter of a turn further after the beeper has started or ceased to sound.

❑ Close the cover.

[1]. The intensity of the light emitted from the LTS can be adjusted by means of a strap on P-607 on the CPU Board:
No strap = weaker
Strap = stronger

LABEL-TAKEN SENSOR, cont'd.

Program Example

The LTS can be enabled or disabled by means of the instructions LTS& ON and LTS& OFF respectively (introduced with *UBI Fingerprint 6.0* and the *UBI Direct Protocol*). Here is an example on how the label-taken sensor is used to control the printing of a ten-label batch printing job. A new copy will not be printed until the pending label has been removed.

```
FONT "SW030RSN"
PRTXT "HELLO"
LTS& ON
PRINTFEED 10
```

In *UBI Fingerprint* versions earlier than 6.0, the status of the label-taken sensor must be polled by a PRSTAT function. The same example as above can be run by a program like this:

```
10   FONT "SW030RSN.1"
20   PRTXT "HELLO"
30   GOSUB 100
40   END
100 I%=10 :REM I% sets number of copies
110 IF (PRSTAT AND 2) THEN GOTO 110
120 PRINTFEED
130 I%=I%-1
140 IF I%>0 THEN GOTO 110
150 RETURN
RUN
```

PAPER CUTTER

General Information

> **CAUTION!**
> **The cutting edge will rotate when the power is turned on and when the printer is rebooted. Always keep the cutter unit in closed position during operation.**

All *EasyCoder 501* models can easily be fitted with an optional Paper Cutter, provided the printer is not also equipped with a label-taken sensor (LTS). The cutter unit is fitted on the same hinges as the front door, which it replaces, and is connected by a single cable to the DIN-connector on the printer's front.

The Paper Cutter is available both as a factory-installed option and as an upgrading kit.
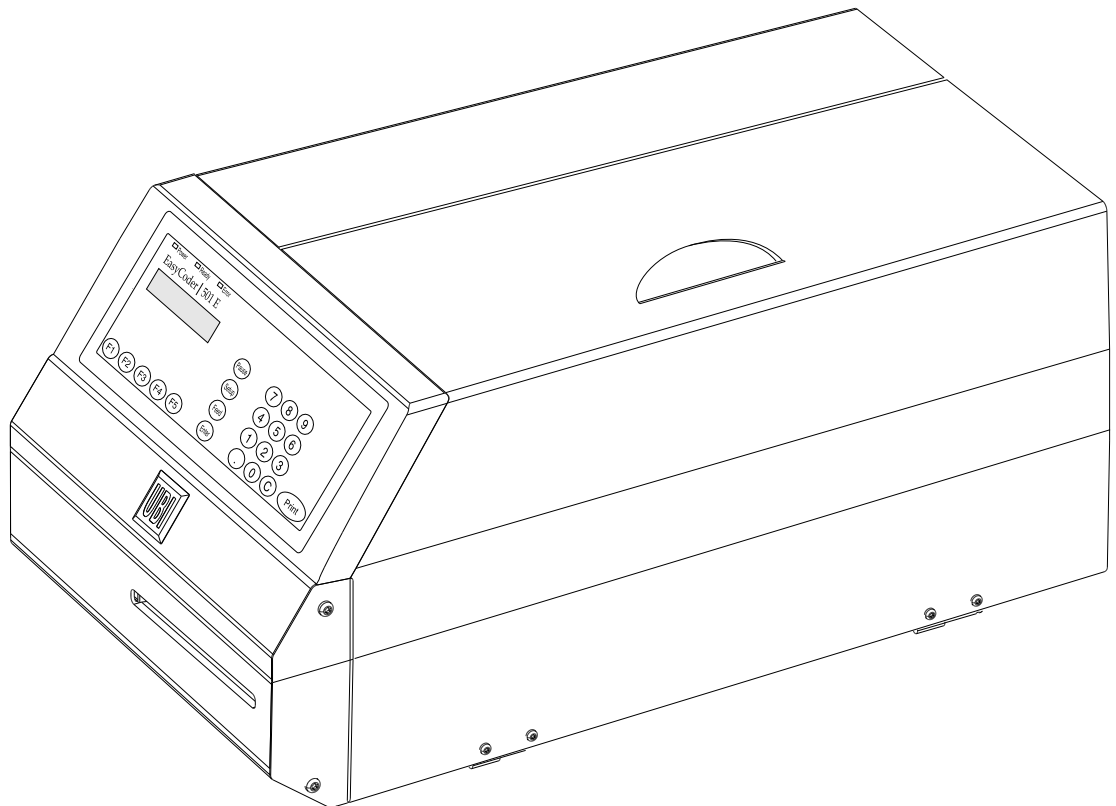
The Paper Cutter is intended to cut through continuous non-adhesive paper strip or through the backing paper between labels. It must not be used to cut through any kind of adhesive, which would stick to the cutting parts and rapidly render the cutter inoperable – possibly also causing damage to the electric motor.

Maximum paper thickness is 175 μm ($\approx$ 175 grammes/m^2) for normal paper-based materials.

The Paper Cutter increases the printer's total weight by approx. 1.0 kgs (=2.2 lbs) and its length by 28 mm (1.1").

PAPER CUTTER, cont'd.

General Information, cont'd. The Paper Cutter can be tilted forward in order to facilitate cleaning and paper load and also to give access to the optional Memory Card Adapter.
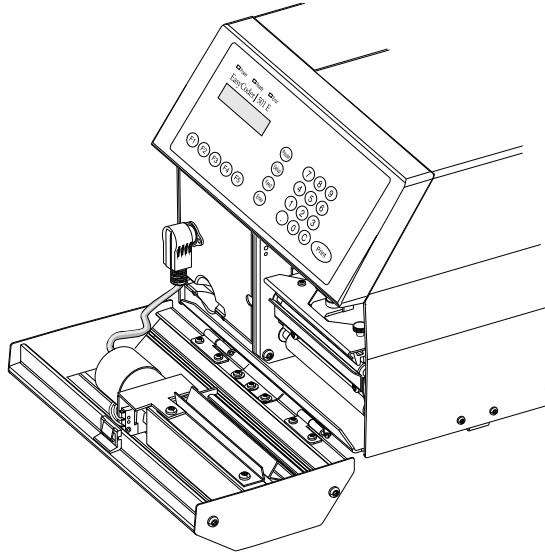
Controlling the Cutter

In *EasyCoder 501* and *501 E,* the cutter is activated by CUT or CUT ON instructions, see *UBI Fingerprint* manuals or *UBI Direct Protocol* Programmer's Guide.

In *EasyCoder 501 SA*, the cutter can be turned on/off by means of a menu in the Set Mode, see *UBI Stand-Alone Concept* Operating Instructions.

The rotating edge will cut through the paper approx. 37 mm (1.5") in front of the printer's dot line. The paper feed should be adjusted accordingly, see *"Setup Parameters; Detection"* earlier in this manual.

> **CAUTION!**
> **For safety reasons, the cutter must not be operated when in open position. As a precaution, the cable could be disconnected.**

Cleaning

Should you inadvertently have cut through self-adhesive web, you will have to clean the "knife", which is a rotating shaft with an edge. Tilt down the cutter and use a piece of tissue moistened with isopropyl alcohol, or a similar solvent, to wipe clean the shaft.

> **CAUTION!**
> **Turn off the power or disconnect the cutter before cleaning.**
> **Keep fingers away from cutting parts!**

SENSOR KIT

General Information

As an option, the *EasyCoder 501 E* and *EasyCoder 501 SA* can be fitted with two sensors, which detect the rotation of the paper supply spool and the ribbon unwind shaft and update two counters, one for each sensor. By means of custom-made application programs, the counters can be read and used to indicate paper-low and ribbon-low conditions (as opposed to out-of-paper-out and out-of-ribbon conditions, which are supported by the standard error handling). See SYSVAR in *UBI Fingerprint* manuals or in the *UBI Direct Protocol* Programmer's Guide.

The sensors require no regular cleaning. However, should any malfunction be detected, you may try to blow the sensors clean from dust or paper residue before calling for service.

The sensitivity of the sensors cannot be adjusted.

Ribbon Low Sensor

Paper Low Sensor
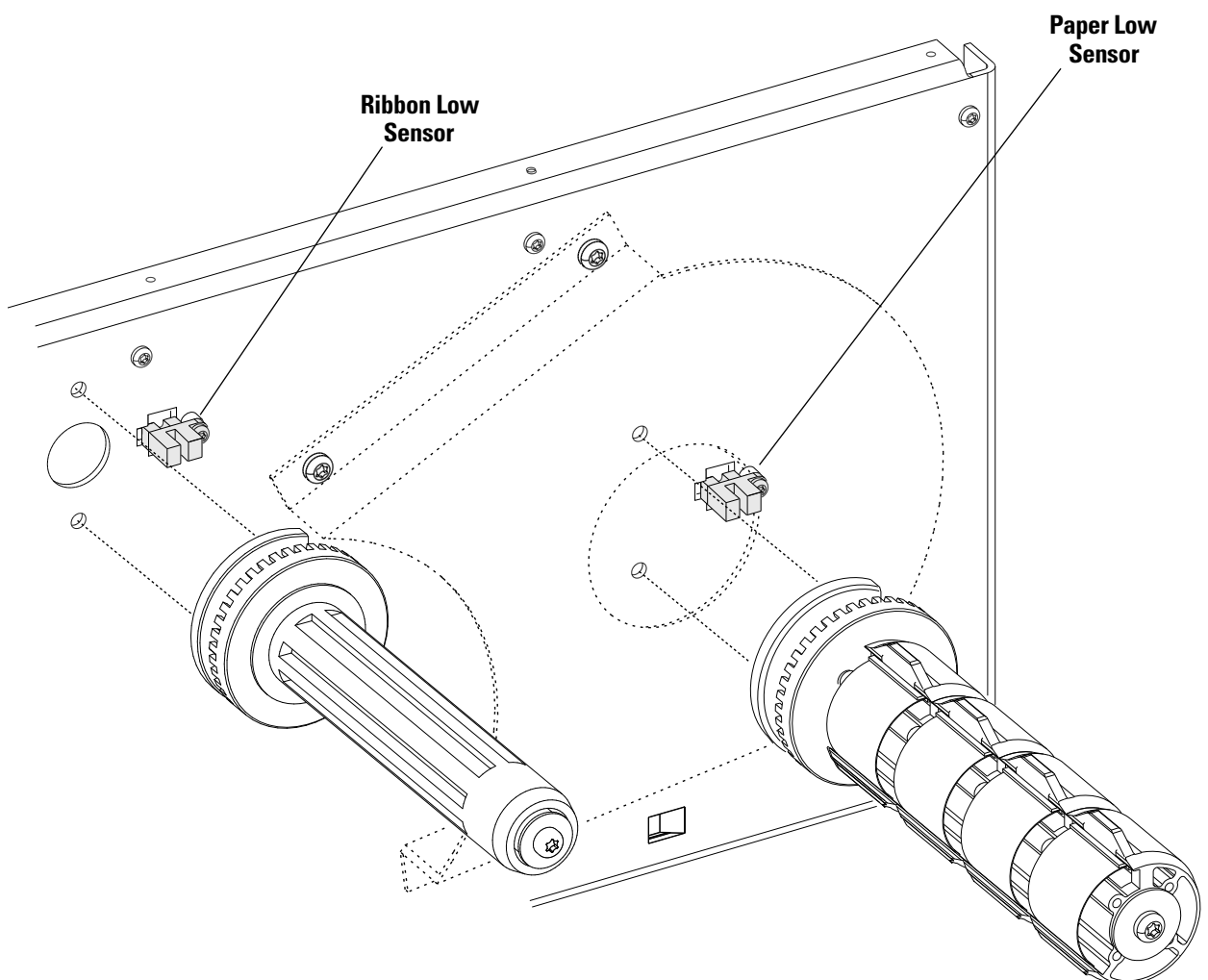
RIBBON SAVE DEVICE

Working Principles
The Ribbon Save Device is a factory-installed option for *Easy-Coder 501 E* and *EasyCoder 501 SA*. The purpose of the ribbon save is to avoid unnecessary spending of thermal transfer ribbon when feeding out blank labels, or large blank part of printed labels, thereby reducing the cost of thermal transfer printing and increasing the time between ribbon reloads.

Pressing Roller

Drive Roller
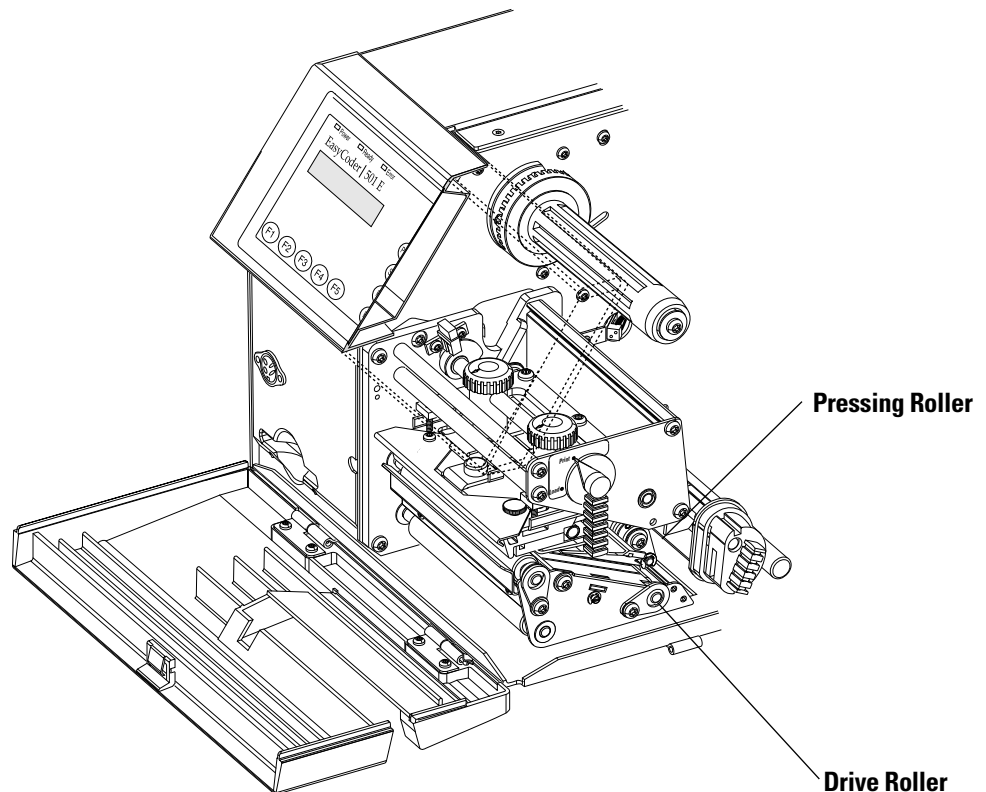
The Ribbon Save Device works automatically, but can be turned off if so desired (see *"Ribbon Save Control"* below). When the software determines that no printing is to be performed within the next 20 mm (≈ 0.8") or more of paper feed, the printhead is lifted by a motor and the transfer ribbon is stopped. Obviously, the print roller can no longer feed out the paper due to the lack of counter pressure, but the rear drive roller, driven by the same belt as the print roller, will push the paper forward. A spring-loaded pressing roller produces counter-pressure.

Shortly before printing is to be resumed, the printhead is lowered, and the transfer ribbon starts running again.

Continued!

RIBBON SAVE DEVICE, cont'd.

Working Principles, cont'd.

Each operation of lifting and lowering the printhead takes 10+2=12 mm ($\approx$ 0.5") of paper/ribbon feed; e.g. at a non-printed area of 20 mm, the actual saving of ribbon will be 8 mm, and at a non-printed area of 50 mm, the saving will be 38 mm.

To facilitate paper reloading, the pressing roll is coupled to the headlift so the pressure is released when the printhead is lifted and the paper can be threaded between the rear drive roller and the pressing roll.

Ribbon Save Control

By default, the Ribbon Save Device is automatically turned on whenever such a device is fitted. However, ribbon save operation can be turned off/on at will by means of RIBBON SAVE OFF and RIBBON SAVE ON instructions, see *UBI Fingerprint* manuals or the *UBI Direct Protocol* Programmer's Guide. There are no adjustments available to the operator.

When the printer is fitted with a Ribbon Save Device, that is **turned off** by means of a RIBBON SAVE OFF instruction, it is recommended not to pull back the paper, e.g. by setting up negative Start Adjust values or issuing negative FORMFEEDs. Pulling back the paper increases the risk of ribbon wrinkling and unsatisfactory printout quality. In case pull back cannot be avoided, test first! Note that this restriction does not apply when the Ribbon Save Device is turned on.

Maintenance

When needed, the rear rollers can be cleaned by means of a cloth or blotting paper slightly moistened with isopropyl alcohol. Allow parts to dry before using the printer.

The Ribbon Save Device is factory adjusted and no readjustment of the nuts on the printhead bracket should be attempted, except by an authorized service technician.

No lubrication is required.

Do NOT change the adjustment!

Continued!
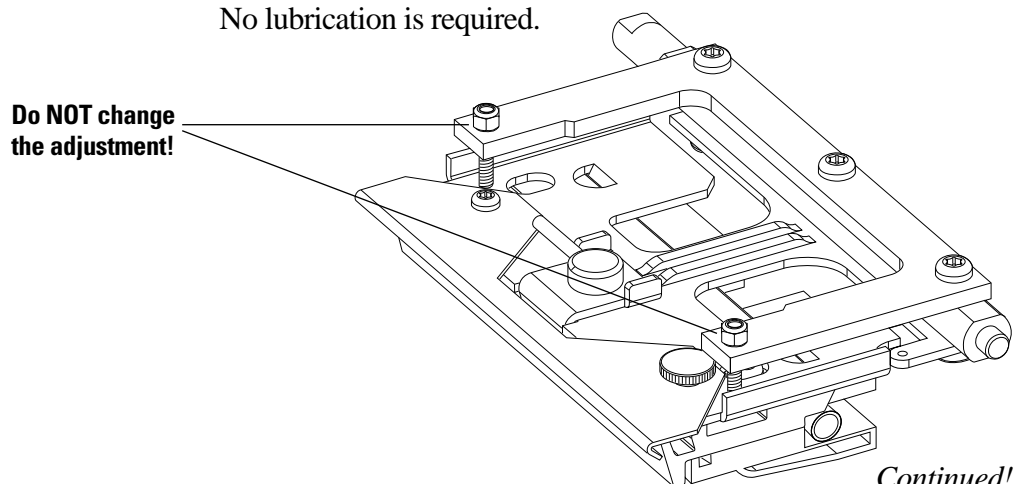
RIBBON SAVE DEVICE, cont'd.

Transfer Ribbons

General Purpose (GP) ribbons are coated with a wax-based "ink" that is more subject to smearing than the wax/resin-based "ink" of High Performance (HP) ribbons. Certain combinations of GP ribbons and thick and/or coarse receiving paper in connection with Ribbon Save may result in a somewhat smudged printout quality. As a possible remedy, a change to HP ribbons is recommended.

LSS Adjustment

In printers fitted with a ribbon save device, the label stop/black mark sensor (LSS) is laterally adjusted by means of a screw protruding through the outer lower gable. Turning the screw clockwise will move the LSS inwards and vice versa. The position of the LSS in relation to the paper is best checked by looking head on into the print unit when the printhead is lifted. Align the centrepoint of the V-shaped upper sensor with the centre of the gaps to be detected.

The linear markings on the lower guide plate can also be used for positioning of the LSS as they are spaced with an interval of exactly 1 cm (0.39") from the edge that guides the paper. This method is especially useful for black marks (measure the lateral position of the black marks with a ruler).
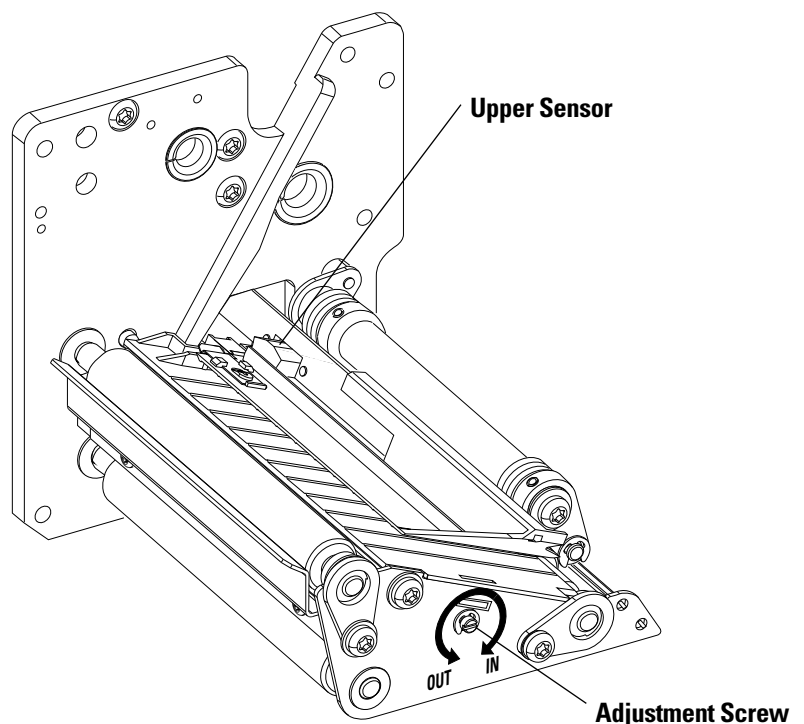
Upper part of the print unit omitted to give a better view!

Continued!

RIBBON SAVE DEVICE, cont'd.

LSS Guides

In the ribbon save print unit, the label stop/black mark sensor (LSS) is partially enclosed by two black plastic guide plates. These have been added to prevent thin receiving media from getting jammed when pushed forward by the rear drive roller at the time when the printhead is lifted.

The guide plates can easily be removed for cleaning. First, pull the upper guide straight out. Then, press the snap-lock of the lower guide by means of a coin or screwdriver and lift the outer end free before carefully pulling the guide plate out.

Both guide plates are provided with seemingly opaque, smooth windows, which actually are transparent to the light of the LSS. These windows must be kept clean from dust, stuck labels and adhesive residue. Only use isopropyl alcohol for cleaning.

When putting back the guide plates, start with the lower one and insert the two studs on the inner side into the corresponding holes in the inner gable. Then press down the outer end so the snap-lock fits into the slot in the outer gable.

The upper guide is threaded onto the beam of the LSS and connects to the lower guide by means of a pin and a metallic snap-lock.

Do not use excessive force when removing or fitting the guide plates!
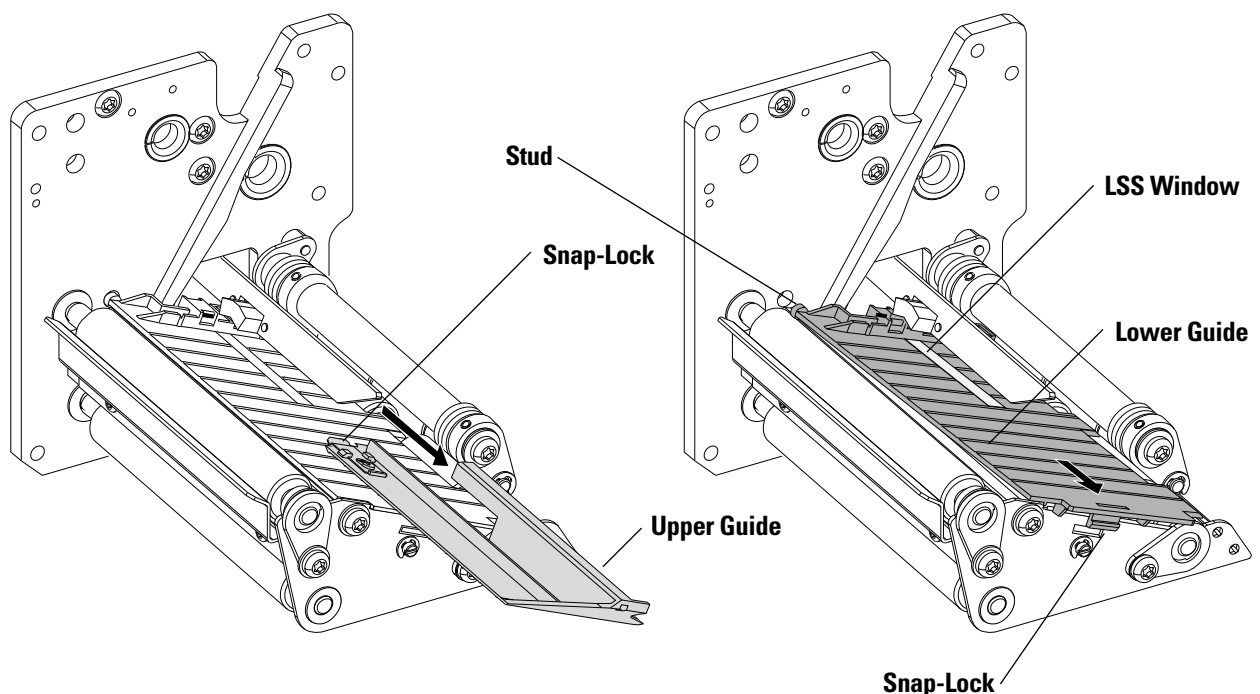
Upper part of the print unit omitted to give a better view!

SCALABLE FONTS KIT

General Information

EasyCoder 501 and *EasyCoder 501 E* can be fitted with an optional firmware package, that allows the printer to use scalable outline fonts in *Speedo* and *TrueType* formats.

Speedo and *TrueType* are standard outline font formats for personal computers developed by *Bitstream, Inc.* and *Apple Computer, Inc.* respectively. There are thousands of different fonts available from *UBI Printer AB* at a low cost. The fonts come as files in PC format and can be downloaded to the printer via the *Kermit* communication protocol (see later in this chapter) or be copied to a memory card, which is inserted in the printer's optional memory card adapter.

This gold label guarantees the quality and functionality of original Speedo and True-Type products from UBI. Products from other suppliers might work, but the functionality cannot be guaranteed, nor is any support given by UBI

Scaling Fonts in UBI Fingerprint

The *UBI Fingerprint* statement FONT converts the selected outline font according to the specified characteristics to *UBI's* bitmap font format, after which it can be used as any other installed bitmap font (also see FONT statement in *UBI Fingerprint* Reference Manual).

The outline font can by converted in regard of:
• Name
• Size
• Range of characters
• Direction
• Slanting
• Rotation
• Character map table

After the conversion the bitmap font may either be saved in the battery backed-up part of the RAM memory or in a no-save area (i.e. the bitmap font will be erased at power-off).

Scaling Fonts in UBI Shell

The *UBI Shell* startup program for *Enhanced* printer models offers another, more convenient way of scaling outline fonts. Please refer to the *UBI Shell Enhanced* Startup Manual for further information.

SCALABLE FONTS KIT, cont'd.

Downloading Outline Font Files from a PC

Scalable outline font files come in PC format. Using a personal computer, such font files can be downloaded to the RAM memory of the printer. The following description applies to the *Terminal* program in *Microsoft Windows*, but similar methods can be used with other communication programs that support *Kermit*.

- Break any program running in the printer, e.g. by pressing the < **C** > and < **Pause** > keys. The printer should be in the Immediate Mode of *UBI Fingerprint*.

- Set up the printer and the computer for RS 232C with the same communication parameters and connect the computer to the communication port "uart1:" of the printer.

- Check that the communication works both ways by typing e.g. **BEEP** on the computer. The printer should respond by emitting a short beeping sound and return **Ok** to the computer's screen.

- Set up the printer to receive a file by typing:
  TRANSFER K "R" ↵

  For more information, refer to the TRANSFER KERMIT statement in the *UBI Fingerprint* Reference Manual.

- In the Terminal program, select:
  Settings\Binary Transfer\Kermit.

- Start the transfer of the file by selecting:
  Transfers\Send Binary File.

- Select the scalable outline font file you want to transfer, e.g. **BX000003.SPD**.

- At the bottom of the window, the progress of the transfer is shown. Downloading will take a minute or so, depending on the size of the file.

SCALABLE FONTS KIT, cont'd.

Printout Samples

The following 10 scalable outline fonts in *Speedo* format are stored in the EPROMs of the Scalable Fonts Kit. All characters from ASCII 32 through 254 decimal according to the Roman 8 character set are included.

|	
UBI0003.SPD Bitstream Swiss 721 0003 Roman	THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG the quick brown fox jumps over the lazy dog 012345
UBI0005.SPD Bitstream Swiss 721 0005 Bold	**THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG** **the quick brown fox jumps over the lazy dog 012345**
UBI0010.SPD Bitstream Swiss 721 0010 Bold Condensed	**THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG** **the quick brown fox jumps over the lazy dog 012345**
UBI0011.SPD Bitstream Dutch 801 0011 Roman	THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG the quick brown fox jumps over the lazy dog 012345
UBI0013.SPD Bitstream Dutch 801 0013 Bold	**THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG** **the quick brown fox jumps over the lazy dog 012345**
UBI0138.SPD Bitstream Futura 0138 Light	THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG the quick brown fox jumps over the lazy dog 012345
UBI0414.SPD Bitstream Letter Gothic 12 Pitch 0414 Roman	**Fixed Spacing** THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG the quick brown fox jumps over the lazy dog 012345
UBI0596.SPD Bitstream Monospace 821 0596 Roman	**Fixed Spacing** THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG the quick brown fox jumps over the lazy dog
UBI0598.SPD Bitstream Monospace 821 0598 Bold	**Fixed Spacing** **THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG** **the quick brown fox jumps over the lazy dog**
UBI0959.SPD Bitstream Zurich 0959 Extra Condensed	THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG the quick brown fox jumps over the lazy dog 012345

ELECTRONICS

Accessing the CPU Board

⚡ **WARNING!** ⚡
**Disconnect the power cord
before removing the cover.
Dangerous voltage!**

The CPU board is situated in the electronics compartment on the left side of the printer's centre-line wall. To gain access to the electronics compartment, proceed as follows:

❑ Turn off the printer and disconnect the power cord. The CPU board contains power supply circuits with dangerous voltage.

❑ Remove the four #T10 Torx screws situated along the lower edge of the cover plate as indicated on the illustration below.

❑ Open the right-hand door and remove the four #T10 Torx screws at the top of the cover plate.

❑ Remove the cover plate.

❑ Reassemble in reverse order.

4 Screws

Cover Plate

4 Screws
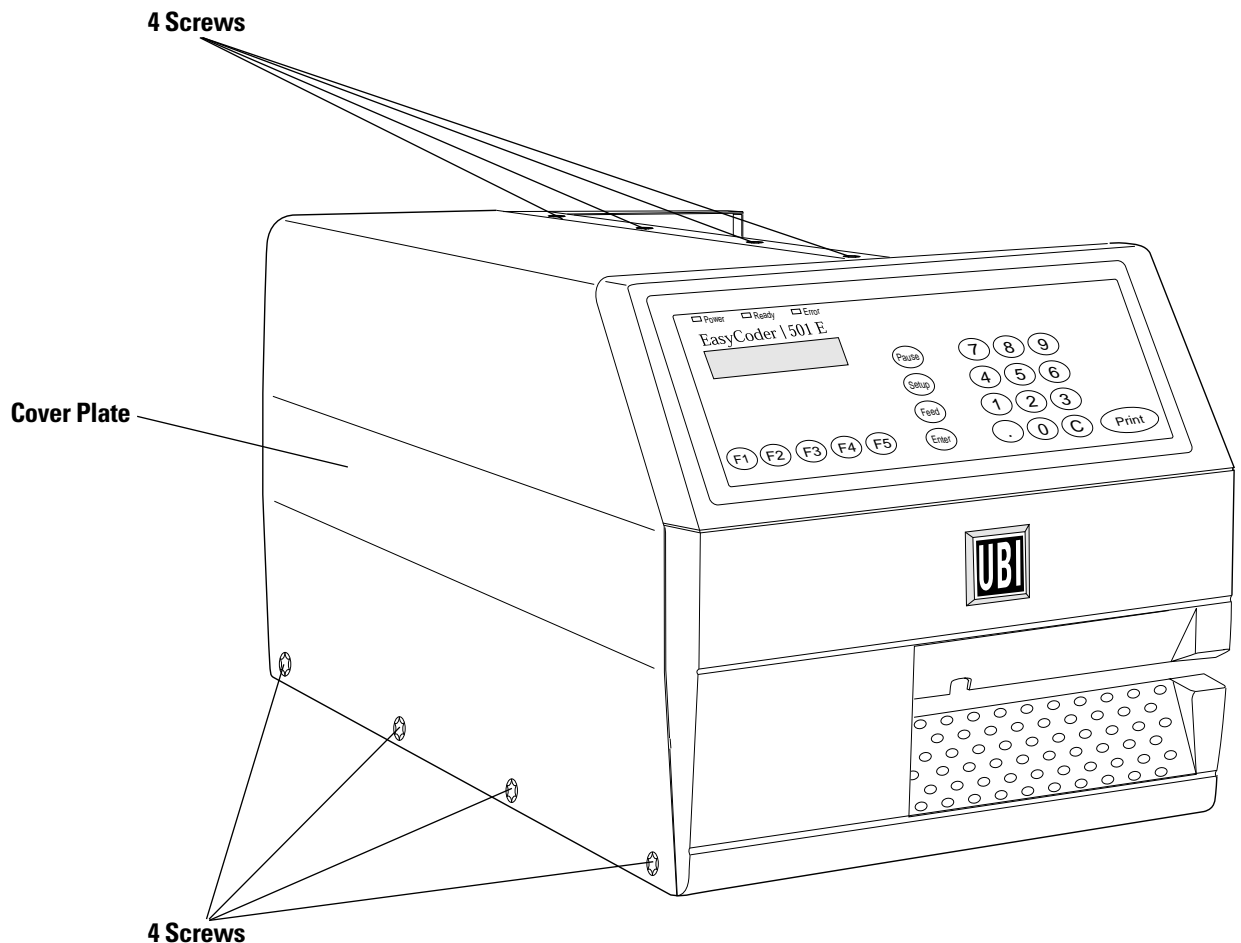
ELECTRONICS, cont'd.

CPU Board

The CPU board contains a number of jumpers and socket-mounted circuits, which decide how the printer will work.

The illustration shows the CPU board 1-040700-30.

Power On LED
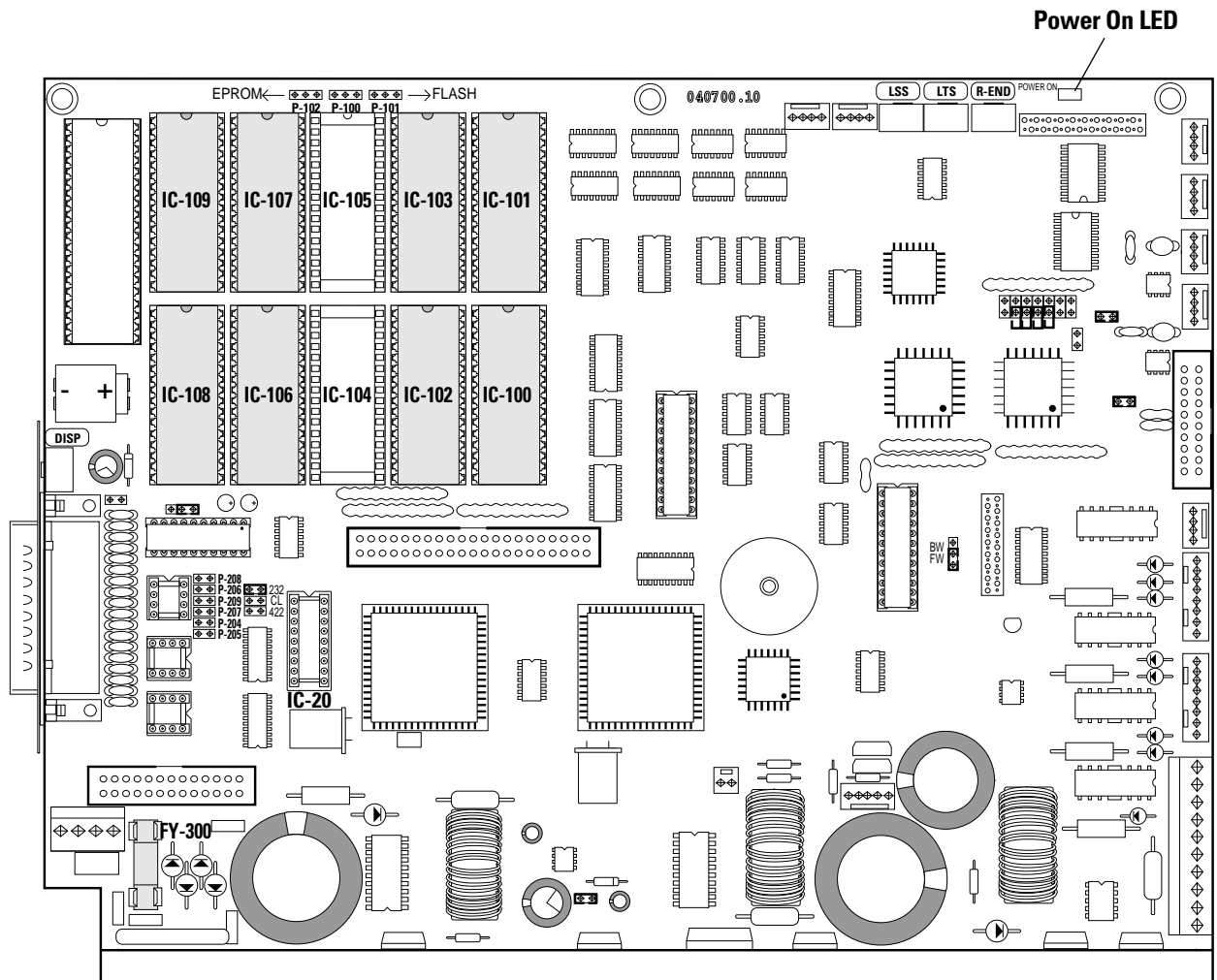
Before touching the CPU board, carefully read the following instructions:

- Take precautions to prevent electrostatic discharge.

- Keep in mind that the RAMs and the clock circuit are battery backed-up. Therefore, there is a risk of short-circuit if any conductive tools are used on the CPU board.

- When adding or replacing any socket-mounted circuits, make sure that their "front" markings are pointing in the direction indicated by the illustration above.

> **NOTE:**
> **A red lamp (LED) at the upper front corner of the CPU board is lit when the power is on.**

ELECTRONICS, cont'd.

Present EPROM Types:		
IC-100 & IC-101:		
27C010	128 kbyte	(1 Mbit)
27C020	256 kbyte	(2 Mbit)
IC-102 – IC-105:		
27C010	128 kbyte	(1 Mbit)
27C020	256 kbyte	(2 Mbit)
27C040	512 kbyte	(4 Mbit)

The CPU board can be fitted with two, four, or six EPROM[1] packages. Since EPROMs do not require any current to retain their content and cannot be erased while fitted the printer, they are used to store programs and files, which are necessary for running the printer. EPROMs must always be fitted in couples, where both EPROMs must be CMOS-type of the same size and have a maximum access time of 120 nS. In case of any EPROMs larger than 256 kbyte (2 Mbit), three jumpers must be fitted in the left-hand positions of P-100, P-101, and P-102.

The CPU board is prepared to have all EPROMs replaced by Flash Memory packages with an individual size of 512 kbyte (4 Mbit). This requires special software, and three jumpers must be fitted in the right-hand positions of P-100, P-101, and P-102.

UBI Fingerprint EPROMs

IC-100 & IC-101

These two EPROMs are alike for all *EasyCoder* printers with the same version of the *UBI Fingerprint* software and always contain:
- The *UBI Fingerprint* firmware.
- The default setup (see the chapter *"Setup Parameters"*).
- Standard bar code generators[1].
- UPC/EAN bar code interpretation fonts.
- Standard fonts SW030RSN.1 and SW030RSN.2 [2].
- Setup options for direct thermal paper and thermal transfer ribbon, see the chapter "*Selecting Paper/Ribbon"*.
- Utility programs MKAUTO.PRG and FILELIST.PRG [2].
- UBI.1 image.

Configuration EPROMs

IC-102 & IC-103

These two Configuration EPROMs give the printer its special characteristics and may either contain a standard set of files for the printer model in question, or a special set of files and application programs composed according to the customer's requirements.

ROM-expansion EPROMs

IC-104 & IC-105

In these two sockets, two additional EPROMs containing e.g. additional bar codes or firmware for scaling *TrueType* and *Speedo* fonts can be fitted (see *"Scalable Fonts Kit"*).

P-100, P-101 & P-102

*[1]. EPROM is an abbreviation for **E**rasable **P**rogrammable **R**ead-**O**nly **M**emory.*

[2]. Please refer to the corresponding version of the UBI Fingerprint manuals.

As standard, these straps are left empty, but three jumpers must be fitted if any EPROMs larger than 256 kbyte, or Flash Memory packages, are fitted in sockets IC-100 – IC-105:

Pin 1–2 (r-h pos.)   Flash Memory packages
Pin 2–3 (l-h pos.)   EPROMs > 256 kbyte

ELECTRONICS, cont'd.

RAM Memory

> **WARNING!**
> **The semicircular "front" marking of each package should face upward as seen when the CPU board is fitted in the printer.**
> **If a RAM package is fitted upside down, the recharging of the CPU board's battery backup could be damaged. This will eventually cause memory loss.**

IC-106, IC-107, IC-108 and IC-109

In these sockets either two or four SRAM[1] packages, which contain the printer's working and storage memory, can be fitted. The SRAM packages must have an access time of max. 120 ns and be fitted in couples (first couple on IC-106 and IC-107, second on IC-108 and IC-109).

All SRAM packages must be of the same type and size:
- 2×128 kbyte (1 Mbit) = 256 kbyte (2 Mbit)
- 4×128 kbyte (1 Mbit) = 512 kbyte (4 Mbit)
- 2×512 kbyte (4 Mbit) = 1.024 kbyte (8 Mbit)
- 4×512 kbyte (4 Mbit) = 2.048 kbyte (16 Mbit)

The size of the SRAM's is automatically defined by the printer.

The RAM memory is battery backed-up to avoid loss of data when the printer is turned off or if the power fails. The NiCd-accumulator is automatically recharged when the power is on. After having installed the printer, leave the power on overnight to allow the battery to become fully recharged. If the printer is kept turned on less than full working hours, it is recommended to leave the power on overnight at least once a week. Do not leave the printer off for several weeks (e.g. during holidays) without having made a full memory backup on a computer disk.

Real-time Clock Circuit

IC-20

The optional real-time clock circuit (RTC) contains a clock/calendar with battery backup. When an RTC is fitted on IC-20, the time and date do not have to be set manually each time the printer is started. (See TIME$ and DATE$ in the *UBI Fingerprint* manuals or in the *UBI Direct Protocol* Programmer's Guide).

When installing an RTC, be careful to fit it with the semi-circular marking pointing upward, as seen when the CPU board is fitted in the printer. Because of the risk of short-circuits, do not use any conductive tools when fitting or removing the RTC.

Fuse

FY-300

The CPU board contains components for transforming the mains current into the various voltages required by the logics and the printhead. The CPU board is protected by a fuse situated at the lower left corner of the board.

Never replace a blown fuse without having found and remedied the fault, that caused it to blow. That usually requires the assistance of a skilled service technician.
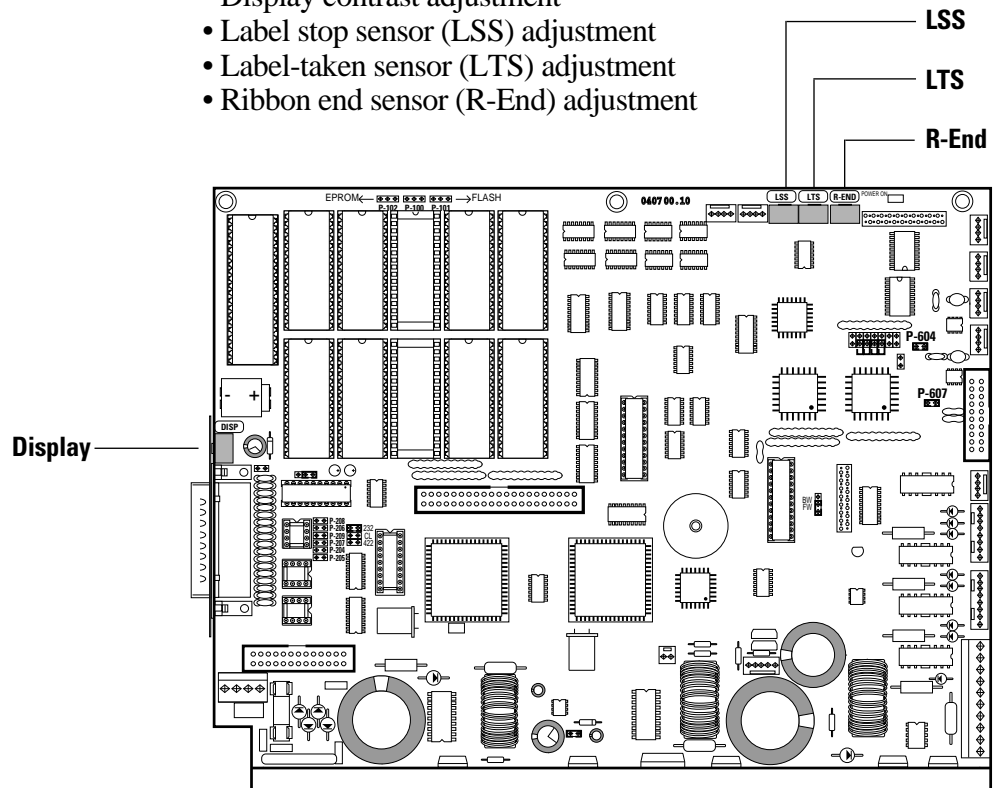
---

[1]. SRAM is an abbreviation for Static Random Access Memory.
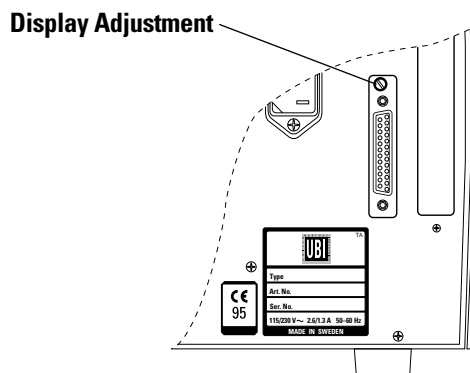
ELECTRONICS, cont'd.

Potentiometers

The CPU board is fitted with four potentiometers with the following functions:

• Display contrast adjustment
• Label stop sensor (LSS) adjustment
• Label-taken sensor (LTS) adjustment
• Ribbon end sensor (R-End) adjustment

❏ **Display Contrast Adjustment:**
This potentiometer is situated close to the connector of "uart1:" and can be accessed through a small hole in the rear plate. Using a narrow-tipped screwdriver, turn the screw in either direction until the text in the LCD display on the printer's front becomes clearly visible in the prevailing light conditions when viewed from a normal working position.

Continued!

ELECTRONICS, cont'd.

Potentiometers, cont'd.

> *Caution!*
> *Adjustments must be done with utmost care. Since the power must be on during the adjustment procedure, precautions must be taken to avoid any risk of electrical shock or short-circuits! Use non-conductive tools and keep fingers away from the CPU board, especially the area behind it, where the mains inlet and main switch are situated.*

The remaining three potentiometers are situated along the top edge of the CPU board and can only be accessed after the left-hand cover plate has been removed. Normally, they do not require any adjustment.

❏ **Label Stop Sensor Adjustment:**
This potentiometer is used in connection with the printer's Setup Mode for adjusting the sensitivity of the label stop sensor, e.g. according to the transparency of various brands of backing paper. In most cases, it will be sufficient to use the adjustment method offered in the Setup Mode and the Testfeed facility.

❏ **Label-Taken Sensor Adjustment**
The label-taken sensor (optional) is situated above the paper outfeed slot and detects if a label has not been removed from the outfeed area. Thereby, the printer can be programmed not to print any more copies before the last copy has been removed. The operation of this sensor depends to a large extent on the reflectivity of the labels (e.g. glossiness, colour etc.). Thus, it may sometimes require adjustment when switching between different types of labels.

The light intensity of the emitter can be changed between two values by means of fitting or removing a strap on P-607 (strap fitted = increased intensity).

❏ **Ribbon End Sensor Adjustment:**
The ribbon end sensor is situated at the rear part of the printing mechanism. It emits a narrow beam of light and detects when there is no more thermal transfer ribbon left to stop the light from being reflected back from the mirror plate. This sensor is factory-adjusted and should normally not require any further adjustment, except after possible replacement.

The light intensity of the emitter can be changed between two values by means of fitting or removing a strap on P-604 (strap fitted = increased intensity).

Obviously, this sensor is omitted if the printer is not fitted with any transfer ribbon mechanism.

Before changing the setting of a potentiometer, always make sure that the corresponding sensor is clean, free from obstructions (e.g. pieces of labels or adhesive residue), and properly aligned. In case of the ribbon end sensor, also check the mirror plate.

INTERFACES

Communication Port "uart1:"

*UART = **U**niversal **A**synchronous **R**eceiver and **T**ransmitter*

All *EasyCoder 501* printers are fitted with a DB25 male interface connector on their rear plates (comm. port "uart1:"). This connector can be used for an RS 232C, an RS 422, or a 20 mA current loop interface depending on how the CPU board is strapped. In the latter two cases, additional circuits must be fitted. The configuration of the connection cable is also important.
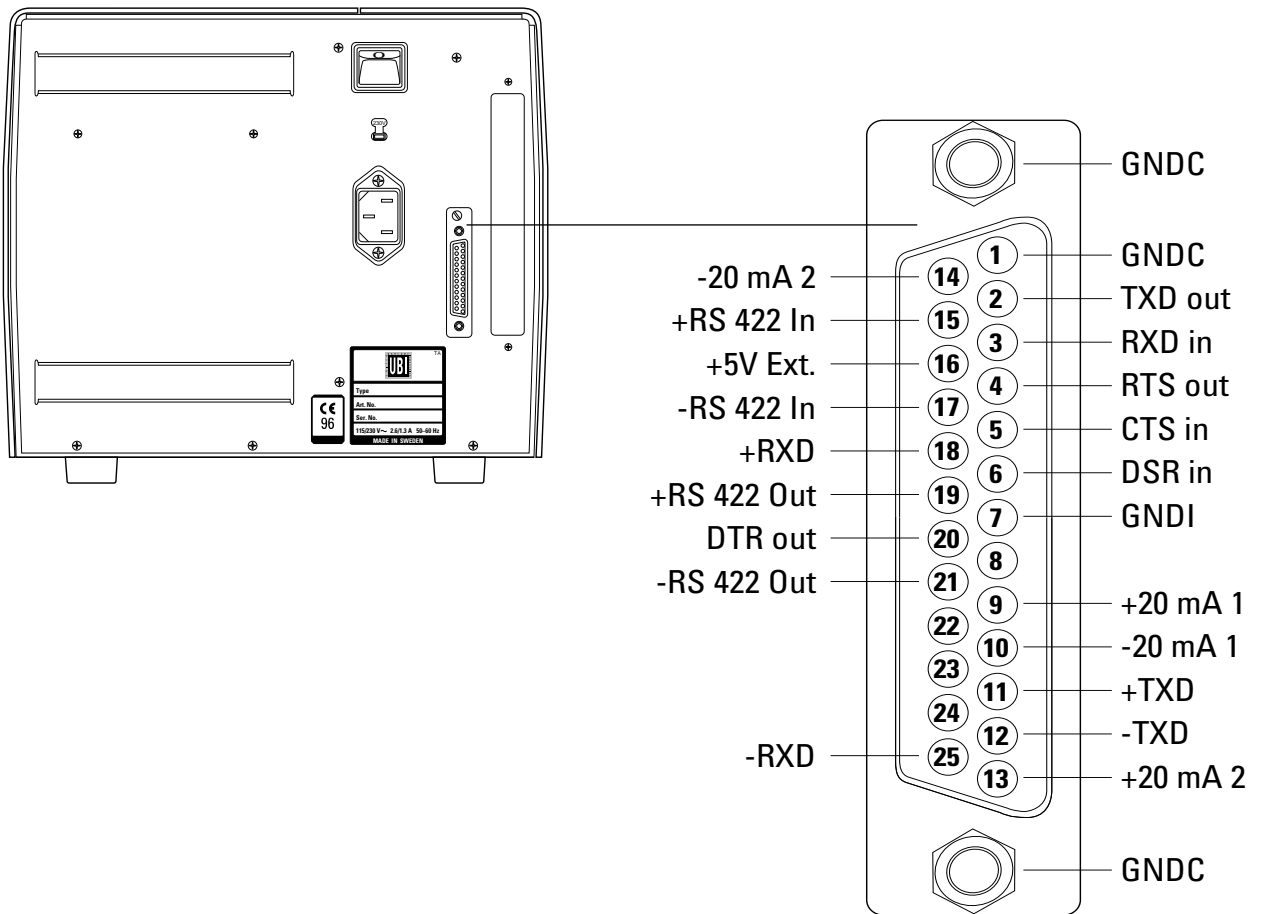
Signals on the printer's communication port "uart1:"

If the printer is ordered without any connection cable, a suitable cable can be procured locally and, if necessary, be modified according to the pinout descriptions in this chapter.

> **NOTE!**
> **A shielded communication cable is required in order to comply with the FCC/DOC approval and to avoid the risk of interference to radio communications.**

INTERFACES, cont'd.

Optional Interface Boards

In addition to the communication port "uart1:", there are four optional interface boards available, either fitted at delivery, or as upgrading kits. Such optional interfaces can easily be recognized by the additional communication ports on the rear plate (①, ② ... indicate alternatives):
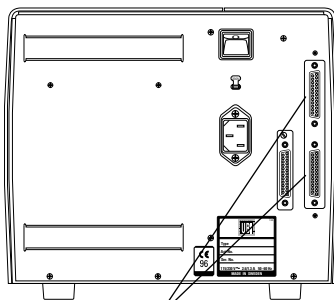
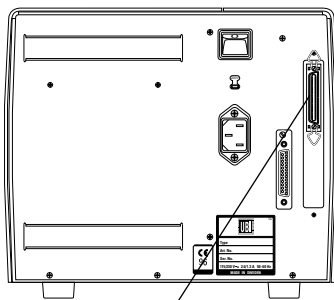**2 × DB25 connectors**

Serial interface board:
① 2 × RS 232C
② 1 × RS 232C + 1 × 20 mA current loop
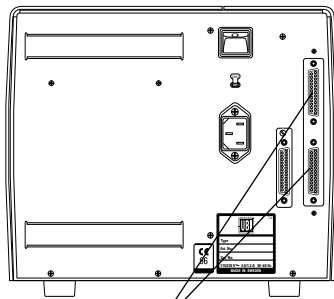
2 × DB25 connectors

RS 422/485 interface board:
① 1 × RS 422 + 1 × RS 232C
② 1 × RS 485 + 1 × RS 232C

1 × 36-p Centronics connector

Parallel interface board:
① 1 × Centronics
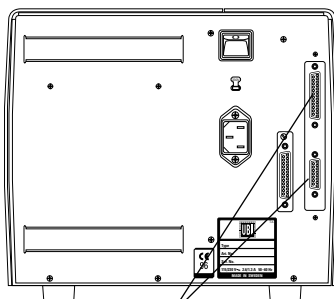
1 × DB25 + 1 × DB15 connectors

Industrial interface board:
① 1 × RS 232C + 1 connector with 4 × IN and 4 × OUT ports

Please refer to the chapter "Models" earlier in this manual for information on which interface boards are available for the various models.

INTERFACES, cont'd.

RS 232C (V24) on "uart1:"

RS 232C (V24) is the most common interface for serial communication with computers over short distances. The transmission can only take place between one transmitter and one receiver. The most simple form of two-way communication only requires a 3-wire cable. The maximum transmission distance is about 10–15 metres (33–49 ft.) and the maximum transmission speed is 19,200 baud.
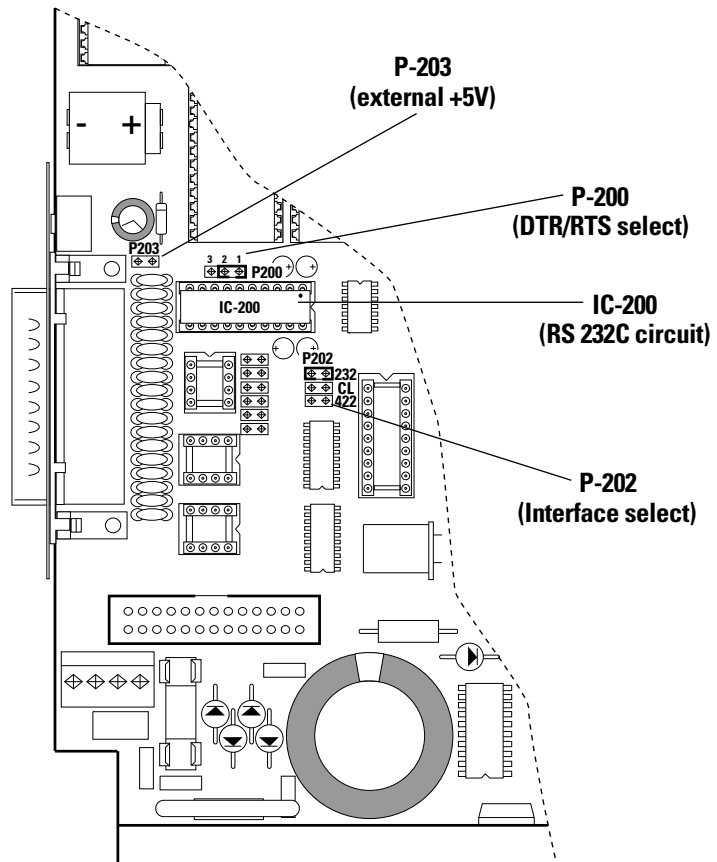
- RS 232C circuit must be fitted on IC-200 (fitted as standard).
- Jumper must be fitted on **uppermost position** of **P-202**.
- ❑ RS 422 circuit on IC-207, opto-couplers on IC-205 and IC-206 (optional) and straps on P-204 – P-209 are of no consequence.

The following hardware straps can be fitted:

P-200   DTR-signal:
Pin 1–2   DTR indicates printer turned on.
Pin 2–3   A copy of the flow signal RTS is produced.

P-203   External 5 Volt[1]:
Jumper fitted connects +5V to pin 16. ***Warning! Max 200 mA.***

[1]. Warning! Be careful not to enable the external 5V unintentionally, which may cause harm to the terminal, PC or other device connected to this port!

Continued!

INTERFACES, cont'd.

RS 232C (V24) on "uart1:", cont'd.

Cable configuration:

The following ready-made RS 232C connection cables can be ordered from *UBI*. Cables procured from other sources should follow the same wiring principles.
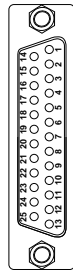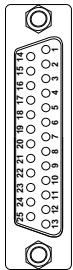
Note:

Be careful not to connect the external +5V unintentionally, which may harm your computer or terminal.

Printer ⇒ IBM-XT/IBM-PS2
Art.No. 1-975580-05
Length: 3 metres (9.8 ft.)

To Printer ("uart1:")		To IBM-XT & PS/2
DB25 female connector	⇐ cable ⇒	DB25 female connector

Housing •		• Housing
Cable shield 1 •		• 1 Cable shield
TXD out 2 •		• 2 TXD out
RXD in 3 •		• 3 RXD in
RTS out 4 •		• 4 RTS out
CTS[1] in 5 •		• 5 CTS in
DSR in 6 •		• 6 DSR in
Signal GND 7 •		• 7 Signal GND
not used 8-15 •		• 8-25 *not used*
(+5V) 16 •		
not used 17-19 •		
DTR out 20 •		
not used 21-25 •		

[1]. If the communication cable is not configured to transmit any CTS signal to the printer, a permanent CTS signal will automatically be produced.

Printer ⇒ IBM-AT
Art.No. 1-975581-05
Length: 3 metres (9.8 ft.)
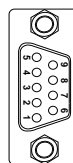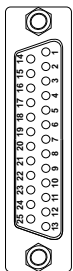
To Printer ("uart1:")		To IBM-AT
DB25 female connector	⇐ cable ⇒	DB9 female connector

Housing •		• Housing
Cable shield 1 •		• 1 *not used*
TXD out 2 •		• 2 RXD in
RXD in 3 •		• 3 TXD out
RTS out 4 •		• 4 *not used*
CTS[1] in 5 •		• 5 Signal GND
DSR in 6 •		• 6 DSR in
Signal GND 7 •		• 7 RTS out
not used 8-15 •		• 8 CTS in
(+5V) 16 •		• 9 *not used*
not used 17-19 •		
DTR out 20 •		
not used 21-25 •		

[1]. If the communication cable is not configured to transmit any CTS signal to the printer, a permanent CTS signal will automatically be produced.
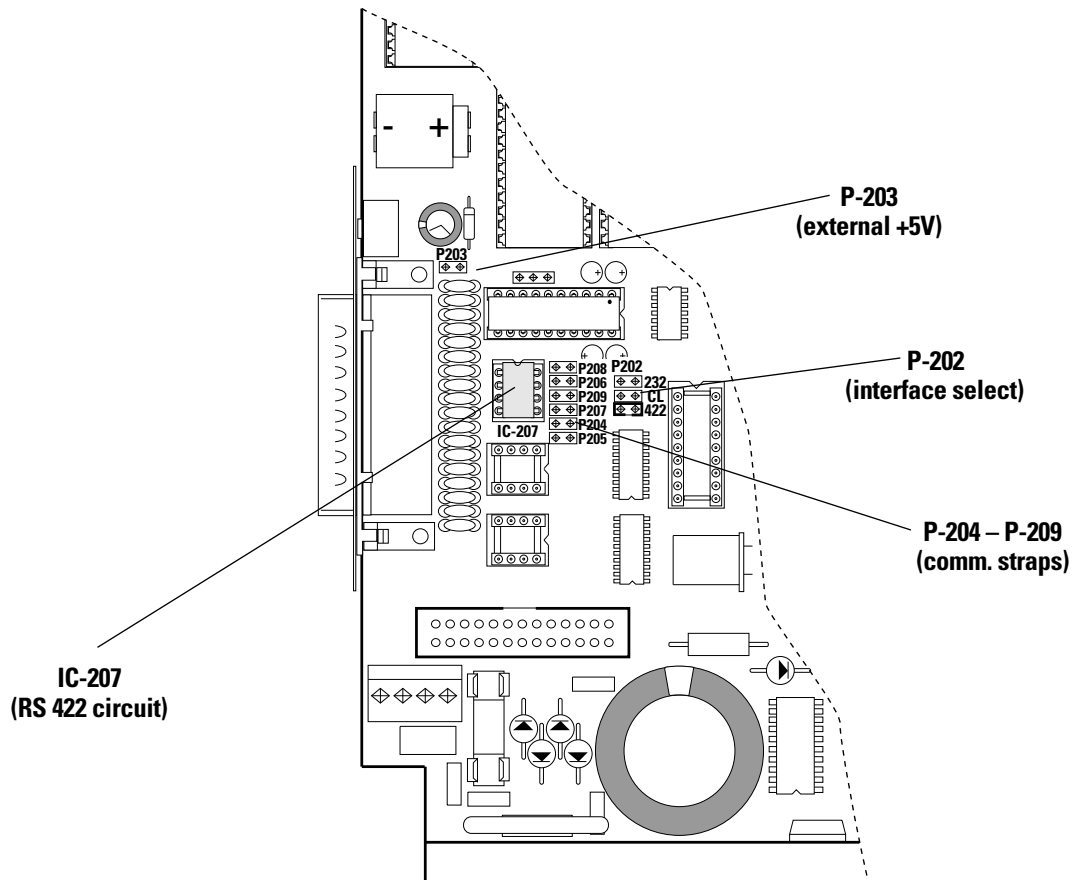
INTERFACES, cont'd.

RS 422 on "uart1:"

RS 422 is a point-to-point interface for connection between one printer and one host computer over a distance of up to 1,200 metres (4,000 ft.) by use of a four-wire cable. The transmission is full duplex, i.e. reception and transmission can take place simultaneously.
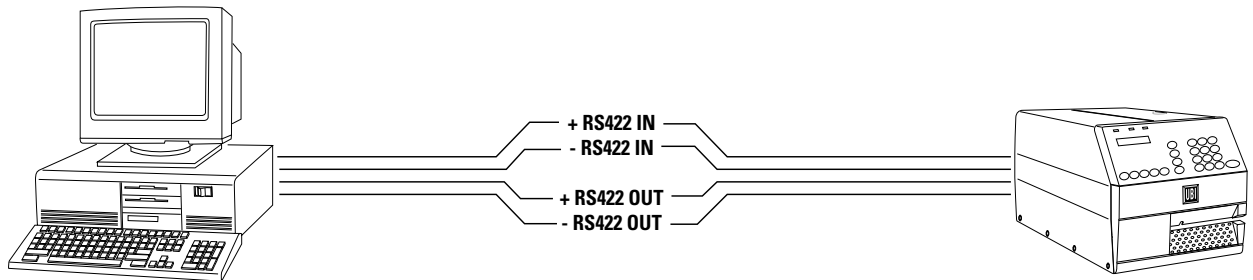
RS 422 connection between host computer and printer

RS 422 requires an additional circuit and a number of straps to be fitted on the CPU board:

P-203
(external +5V)

P-202
(interface select)

P-204 – P-209
(comm. straps)

IC-207
(RS 422 circuit)

Continued!

INTERFACES, cont'd.

**RS 422 on "uart1:", cont'd.**

On the CPU board, check:

■ An optional RS 422 circuit must be fitted on **IC-207**.

■ Jumper must be fitted on the **lowest** position of **P-202** to select RS 422.

■ Jumper must be fitted on some of **P-204** – **P-209** according to diagram below.

❑ RS 232C circuit on IC-200 (standard), jumper on P-200, and opto-couplers on IC-205 and IC-206 (optional) are of no consequence.

P-203 External 5 Volt[1]:
Jumper fitted connects +5V to pin 16. ***Warning! Max. 200 mA.*** (Note that +5V requires an additional wire in the cable).

P-204 – P-209 Communication straps:
Jumpers can be fitted on P-204, P-205, P-206, P-207, P-208 and/or P-209 in order to adapt the RS 422 communication to the host, as shown in the diagram below. Normally, jumpers should be fitted on P-205, P-207 and P-209.
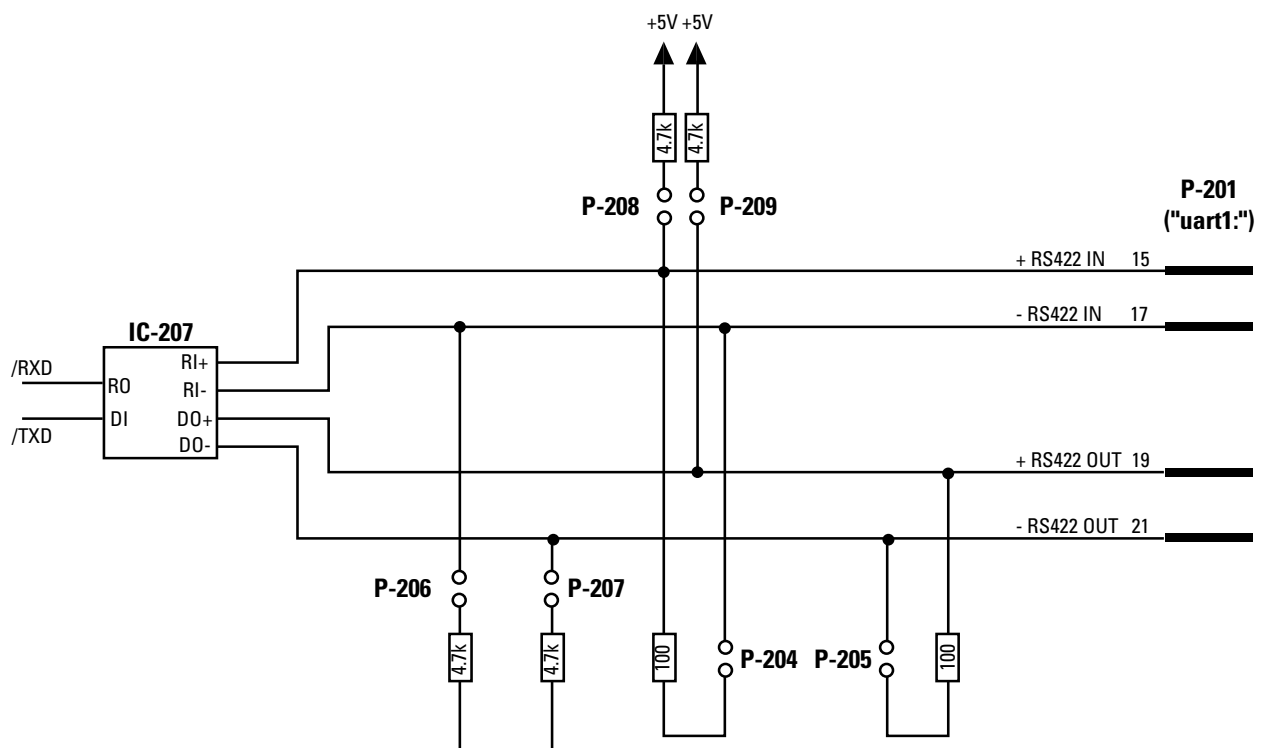
[1]. Warning! Be careful not to enable the external 5V unintentionally, which may cause harm to the terminal, PC or other device connected to this port!
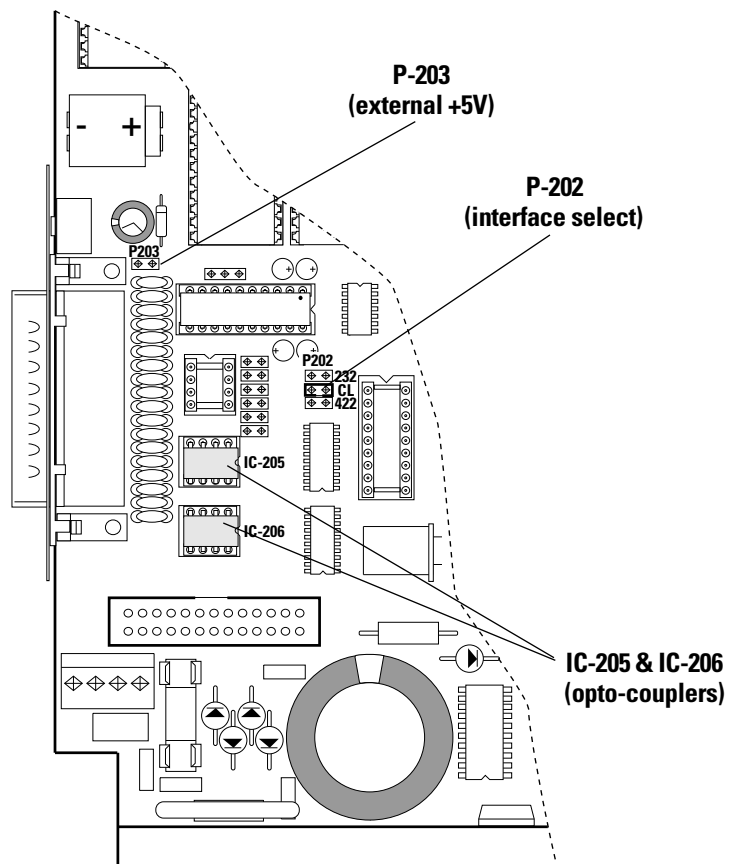
INTERFACES, cont'd.

**20 mA Current Loop
on "uart1:"**

The 20 mA current loop interface is a single-ended, full duplex serial interface which uses current instead of voltage to transmit signals on a four-wire line. 20 mA current corresponds to a logical "0" and 0 mA corresponds to a logical "1".

Opto-couplers are used to separate the transmission line from the internal logics of the printer and the host computer. Therefore this interface is suitable where electrical interference may occur, and for transmission over longer distances (up to 500 metres or 1,500 ft.).

Depending on the configuration of the connection cable between printer and host computer, the printer can work either active (i.e. supplying the current) or passive. A transmission speed between 300 and 9,600 baud is recommended.

Continued!

INTERFACES, cont'd.

20 mA Current Loop on "uart1:", cont'd.

On the CPU board, check:

- Opto-couplers must be fitted on **IC-205** and **IC-206**. These are not included as standard and must be ordered separately.
- Jumper must be fitted on **middle position of P-202** to select 20 mA current loop.
- ❑ RS 422 circuit fitted on IC-207 (optional), RS 232C circuit fitted on IC-200 (standard) and jumpers fitted on P-204 – P-209 or on P-200 are of no consequence.

P-203 External 5 Volt:
Jumper fitted connects +5V to pin 16. ***Warning! Max. 200 mA.***

Be careful not to enable the external 5V unintentionally, which may cause harm to the terminal, PC or other device connected to this port!

Cable configuration:
The printer end of the connection cable should have a DB25 female connector. The computer end of the cable depends on your type of computer.

The printer's connector contains the following signals:

Pin 9   + 20 mA
Pin 10   – 20 mA
Pin 11   TXD +
Pin 12   TXD –
Pin 13   + 20 mA*
Pin 14   – 20 mA*
Pin 16   + 5V, 200 mA (if jumper fitted on P-203)
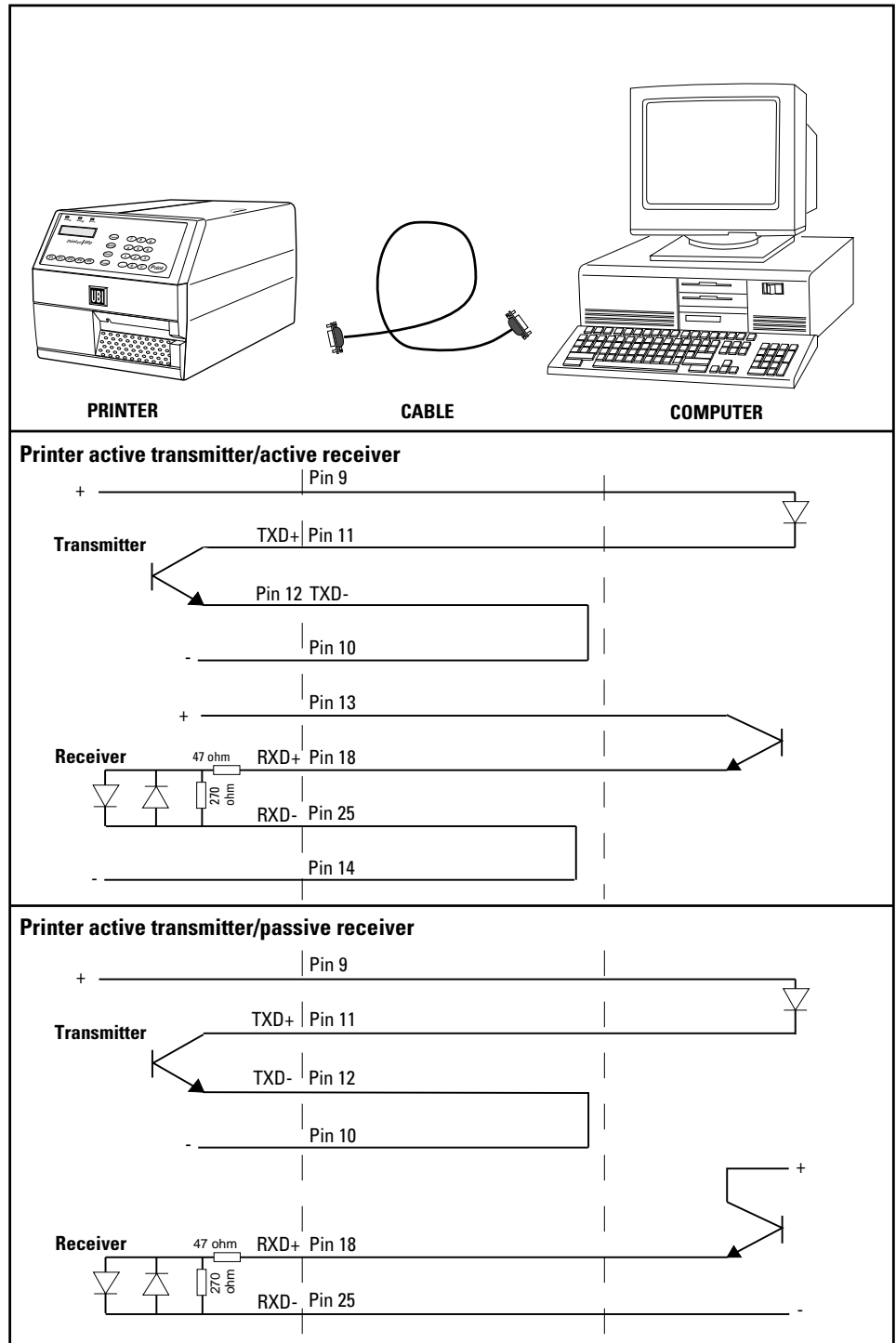Pin 18   RXD +
Pin 25   RXD –
. In case of printer being active receiver.

INTERFACES, cont'd.

20 mA Current Loop on "uart1:", cont'd.

The examples below illustrate two of four possible cases of the printer or host computer being active transmitter or receiver, i.e. being the supplier of the current to the loop.

PRINTER   CABLE   COMPUTER

Printer active transmitter/active receiver

+ — Pin 9

Transmitter — TXD+ Pin 11

Pin 12 TXD-

- — Pin 10

+ — Pin 13

Receiver — 47 ohm — RXD+ Pin 18 — 270 ohm

RXD- Pin 25

- — Pin 14

Printer active transmitter/passive receiver

+ — Pin 9

Transmitter — TXD+ Pin 11

TXD- Pin 12

- — Pin 10

+

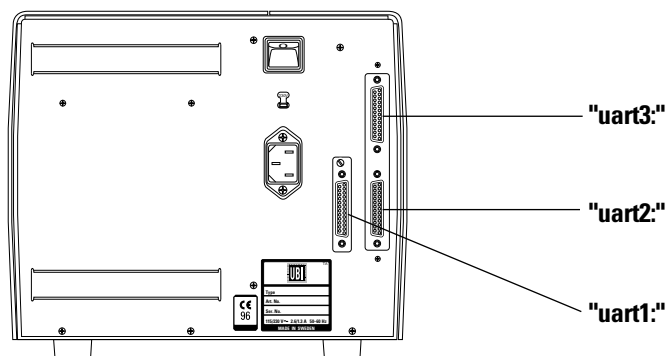Receiver — 47 ohm — RXD+ Pin 18 — 270 ohm

RXD- Pin 25

-

INTERFACES, cont'd.

Serial Interface Board

The Serial Interface Board adds two more serial communication ports ("uart2:" and "uart3:") to the standard serial communication port ("uart1:").

The Serial Interface Board may either be bought separately as a kit complete with installation instructions, or be factory installed.


With the Serial Interface Board installed, the following types of interfaces can be selected:

"uart1:"	*Fitted on printer's CPU pcb.*
RS 232C	Standard.
RS 422 or 20 mA CL	Option. Additional circuits required.

"uart2:"	*Fitted on serial interface pcb.*
RS 232C	

"uart3:"	*Fitted on serial interface pcb.*
RS 232C or 20 mA CL	Select by strap.

INTERFACES, cont'd.

Serial Interface Board, cont'd.

"uart3:"

P-6

"uart2:"

P-3
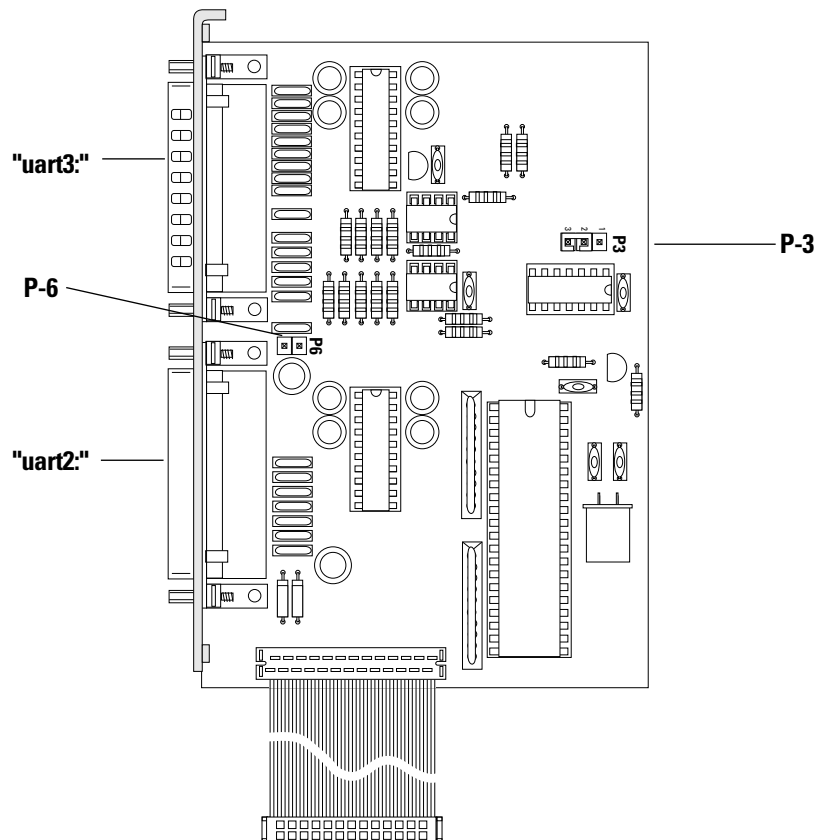
The following straps and circuits are used to set up the desired type of interface on the communication ports "uart2:" and "uart3:".

Communication Port "uart2:"

RS 232C:
There are no straps for controlling the RS 232C interface on "uart2:".

Communication Port "uart3:"

RS 232C:
Strap fitted on **P-3** between pin 1 – 2 (right and middle pins) selects RS 232C.

20 mA Current Loop:
Strap fitted on **P-3** between pin 2 – 3 (middle and left pins) selects 20 mA current loop**.**

External +5V:
External +5V (max. 200 mA) can be made available on pin 16 by fitting a strap on **P-6**.

Be careful not to enable this option unintentionally, which may cause harm to the connected terminal, computer or other device.

INTERFACES, cont'd.

Serial Interface Board, cont'd.

Connector Configuration

"uart2:" is a DB25 **female** connector.
"uart3:" is a DB25 **male** connector.

The mounting holes are connected to chassis ground.

Pin	"uart2:" DB25 female	"uart3:" DB25 male	Used for: "uart2:"	"uart3:"	Remarks
1	GNDC	GNDC	RS 232C	RS 232C	Cable shield
2	TXDA	TXDB	RS 232C	RS 232C	Transmitted data from printer
3	RXDA	RXDB	RS 232C	RS 232C	Received data to printer
4	RTSA	RTSB	RS 232C	RS 232C	RTS from printer
5	CTSA	CTSB	RS 232C	RS 232C	CTS to printer
6	DSRA	DSRB	RS 232C	RS 232C	DSR to printer
7	GNDI	GNDI	RS 232 C	RS 232C	Signal ground
8	–	–	–	–	not used
9	–	+20M1	–	Current loop	+ 20 mA
10	–	–20M1	–	Current loop	- 20 mA
11	–	+TXD	–	Current loop	TXD +
12	–	–TXD	–	Current loop	TXD –
13	–	+20M2	–	Current loop	+ 20 mA *
14	–	–20M2	–	Current loop	– 20 mA *
15	–	–	–	–	not used
16	–	+5VEXT	–	RS 232C/CL	+ 5V max 200 mA. (if strap fitted on P-6)
17	–	–	–	–	not used
18	–	+RXD	–	Current loop	RXD +
19	–	–	–	–	not used
20	DTRA	DTRB	RS 232C	RS 232C	DTR permanently high
21	–	–	–	–	not used
22	–	–	–	–	not used
23	–	–	–	–	not used
24	–	–	–	–	not used
25	–	–RXD	–	Current loop	RXD –

*/. In case of printer being active receiver.

INTERFACES, cont'd.

RS 422/485 Interface Board

The RS 422/485 Interface Board adds two more serial communication ports ("uart2:" and "uart3:") to the standard serial communication port ("uart1:").

The RS 422/485 interface is galvanically insulated from the printer in order to avoid electrical interference.

The RS 422/485 Interface Board may either be bought separately as a kit complete with installation instructions, or be factory installed.
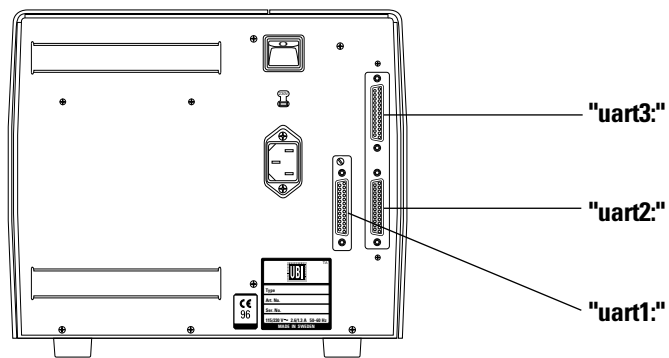
With the RS 422/485 Interface Board installed, the following types of interfaces can be selected:

| **"uart1:"**	*Fitted on printer's CPU- pcb.*
RS 232C	Standard.
RS 422 or 20 mA CL	Option. Additional circuits required.
"uart2:"	*Fitted on RS 422/485 interface pcb.*
RS 422/RS 485	Type selected by straps and cable configuration
"uart3:"	*Fitted on RS 422/485 interface pcb.*
RS 232C	

INTERFACES, cont'd.

RS 422/485 Interface Board, cont'd.
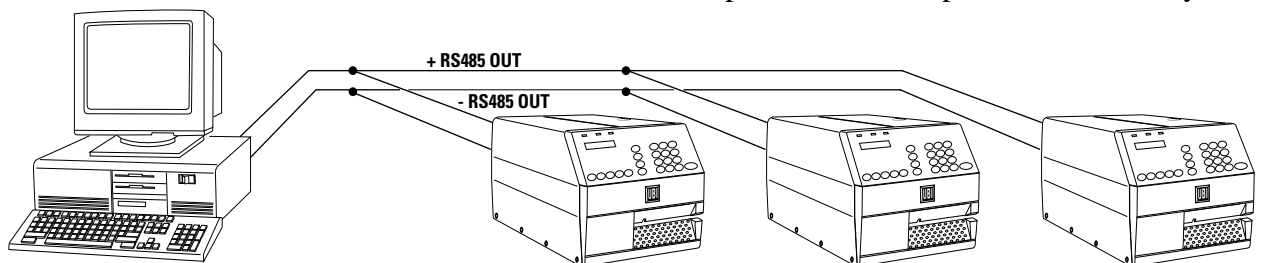
Communication Port "uart2:"

This port can be used for either RS 422 or RS 485 interface:

RS 422 is a point-to-point serial interface, which can connect one printer to a host computer at a distance of up to 1,200 metres (4,000 ft.) using a four-wire screened cable. The transmission is full duplex, i.e. simultaneous transmission and reception.

+ RS422 IN
- RS422 IN
+ RS422 OUT
- RS422 OUT
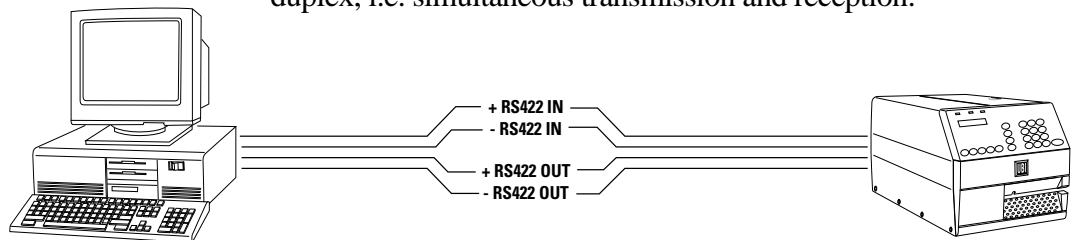
Simplified example of an RS 422 connection.

RS 485 is a serial interface that allows up to 32 units to be connected in a multi-drop loop consisting of a two-wire screened cable with a max. length of 1,200 metres (4,000 ft.) and branching connections of max. 2 metres (6.5 ft.). The transmission is half duplex, i.e. transmission and reception cannot take place simultaneously.

+ RS485 OUT
- RS485 OUT

Simplified example of an RS 485 connection.

Note:

The RS 422/485 communication port is in most cases referred to as "uart2:", except in connection with the OPEN statement, when it must be referred to as "rs485:".

A transmission of data can be addressed to a certain unit in an RS 485 multi-drop loop, provided the *"Prot. addr"* setup option is enabled. Each printer must be given an address by means of straps on the interface board. See *UBI Fingerprint* Programmer's Guide.

In an RS 485 loop, one of the units must be appointed "master" unit. Usually, the host computer is the master. If not (check the manual for the host), one printer can be appointed master by fitting two straps on the interface pcb.

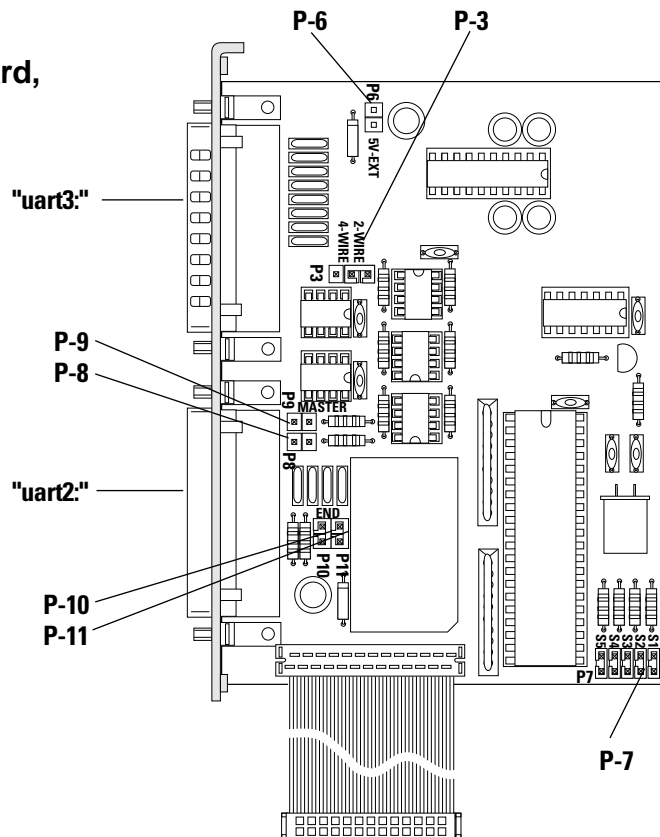The first and last unit must be fitted with one termination strap.

Communication Port "uart3:"

This port always contains an RS 232C serial interface. External +5V (max 200 mA) can be connected by means of a strap.

Continued!

INTERFACES, cont'd.

RS 422/485 Interface Board, cont'd.

The following straps are used to set up the desired interface:

Communication Port "uart2:" (RS 422/485)

P-3 Selects 2- or 4-wire communication (see text on board).

P-7 Selects address for the printer (only used in RS 485 connection with "prot. addr. enable") according to the table later in this chapter.

P-8, P-9 Voltage reference straps.
RS 422: P-8 and P-9 should be strapped on both units.
RS 485: P-8 and P-9 should be strapped on "master" unit. Usually, the host computer is master.

P-10 100 Ω terminating resistor. Should be strapped on the first and last units, regardless of RS 422 or RS 485.

P-11 100 Ω terminating resistor. Should be strapped on both units in an RS 422 line.

Communication Port "uart3:" (RS 232C)

P-6 Connects +5V to pin 16 on "uart3:". Max 200 mA.
Warning! Be careful not to enable the external +5V unintentionally, which may cause harm to the terminal, computer or other device connected to this port!

Continued!

INTERFACES, cont'd.

RS 422/485 Interface Board, cont'd.

The illustrations below show how the voltage reference straps and terminating resistor straps should be fitted on the RS 422/485 interface boards. When a computer is connected to the line or loop, the same principles apply. Refer to the computer manuals for information on how to appoint the computer "master" and how to set the termination.

RS 422 POINT-TO-POINT (printer to printer)

Screened twisted 4-line cable (approx. 50 pf/m)
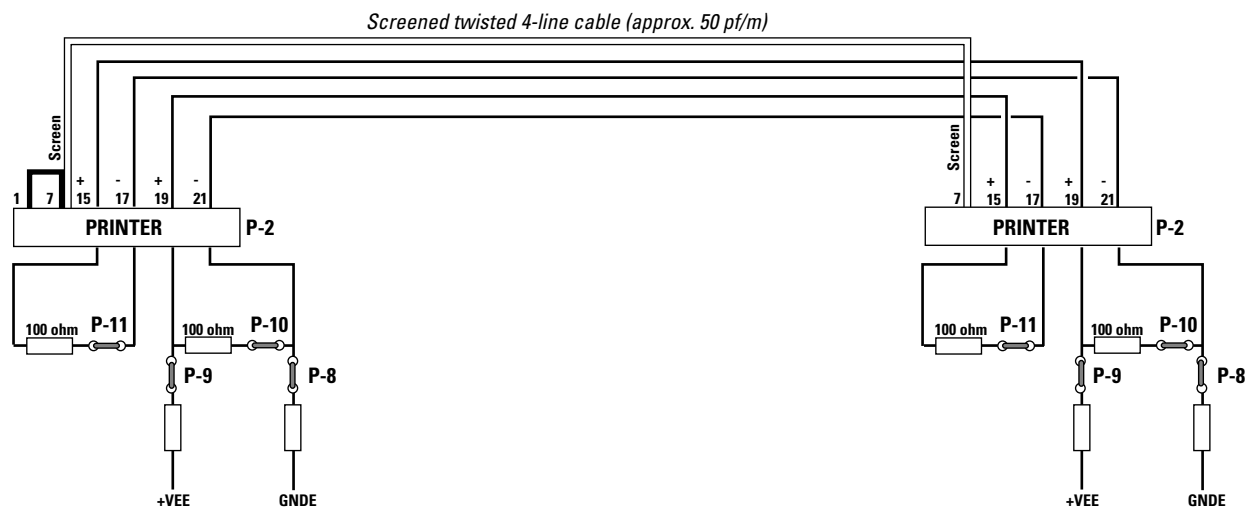
P-8 and P-9 strapped on both units.
P-10 and P-11 strapped on both units.
Connection P-2 pin 7 to Chassis GND
(e.g. P-2 pin 1) on one unit only.

P-8 and P-9 strapped on both units.
P-10 and P-11 strapped on both units.

RS 485 MULTIDROP LOOP (w. printer as master unit)

Screened twisted 2-line cable (approx. 50 pf/m)
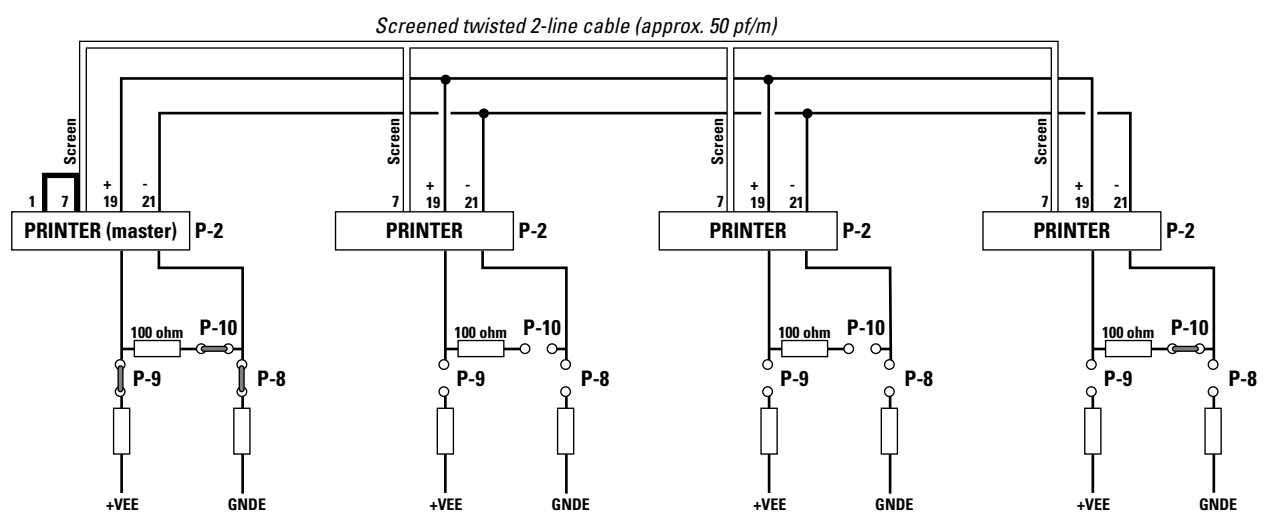
P-8 and P-9 strapped on master unit.
P-10 strapped on first unit.
Connection P-2 pin 7 to Chassis GND
(e.g. P-2 pin 1) on one unit only.

No straps

No straps

P-10 strapped on last unit.

Continued!

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INTERFACES, cont'd.

RS 422/485 Interface Board, cont'd.

Address Straps (P-7):

STRAP:	S1	S2	S3	S4	S5	STRAP:	S1	S2	S3	S4	S5
Address 0	-	-	-	-	-	Address 16	X	-	-	-	-
Address 1	-	-	-	-	X	Address 17	X	-	-	-	X
Address 2	-	-	-	X	-	Address 18	X	-	-	X	-
Address 3	-	-	-	X	X	Address 19	X	-	-	X	X
Address 4	-	-	X	-	-	Address 20	X	-	X	-	-
Address 5	-	-	X	-	X	Address 21	X	-	X	-	X
Address 6	-	-	X	X	-	Address 22	X	-	X	X	-
Address 7	-	-	X	X	X	Address 23	X	-	X	X	X
Address 8	-	X	-	-	-	Address 24	X	X	-	-	-
Address 9	-	X	-	-	X	Address 25	X	X	-	-	X
Address 10	-	X	-	X	-	Address 26	X	X	-	X	-
Address 11	-	X	-	X	X	Address 27	X	X	-	X	X
Address 12	-	X	X	-	-	Address 28	X	X	X	-	-
Address 13	-	X	X	-	X	Address 29	X	X	X	-	X
Address 14	-	X	X	X	-	Address 30	X	X	X	X	-
Address 15	-	X	X	X	X	Address 31	X	X	X	X	X

X=Strap, – = no strap. Address 0 is normally used for the host.

Connector Configuration

"uart2:" is a DB25 **female** connector.

"uart3:" is a DB25 **male** connector.

The mounting holes are connected to chassis ground.

Pin	"uart2:"	Remarks	Pin	"uart3:"	Remarks
1	GNDC	Chassis ground	1	GNDC	Chassis ground
2	–		2	TXDB	Transmitted data from printer
3	–		3	RXDB	Received data to printer
4	–		4	RTSB	RTS from printer
5	–		5	CTSB	CTS to printer
6	–		6	DSRB	DSR to printer
7	GNDE	Interface ground	7	GNDI	Signal ground
8	–		8	–	
9	–		9	–	
10	–		10	–	
11	–		11	–	
12	–		12	–	
13	–		13	–	
14	–		14	–	
15	+RS422 IN	RS 422 only	15	–	
16	–		16	+5VEXT	+ 5V 200 mA, if strap fitted on P6
17	-RS422 IN	RS 422 only	17	–	
18	–		18	–	
19	+RS422 OUT	RS 422/485	19	–	
20	–		20	DTRB	DTR permanently high
21	-RS422 OUT	RS 422/485	21	–	
22	–		22	–	
23	–		23	–	
24	–		24	–	
25	–		25	–	

INTERFACES, cont'd.

Parallel Interface Board

The Parallel Interface Board adds one extra parallel communication port ("centronics:") to the standard serial communication port ("uart1:").

The Parallel Interface Board may either be bought separately as a kit complete with installation instructions, or be factory installed.
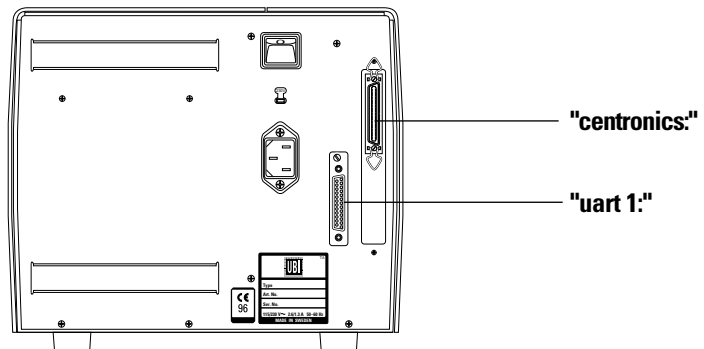

The following types of interfaces can be selected:

"uart1:"	*Fitted on printer's CPU pcb.*
RS 232C	Standard.
RS 422 or 20 mA CL	Option. Additional circuits required.
"centronics:"	*Fitted on Parallel interface pcb.*
Centronics parallel interface	

The setup is in no way affected by the Parallel Interface Board, since the Centronics interface does neither require any communication setup nor uses any buffers.

INTERFACES, cont'd.

Parallel Interface Board, cont'd.
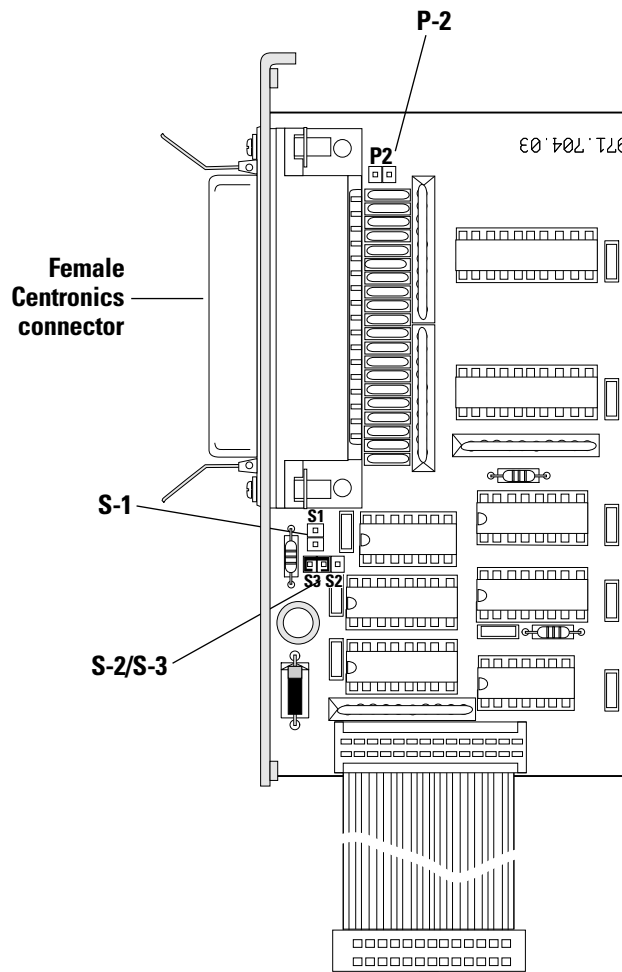
Three different straps can be fitted on the Parallel Interface Board:

External +5V

Jumper fitted on connector **P-2** enables external +5V (max. 200 mA) on pin 18.

Warning! Be careful not to enable the external +5V unintentionally, which may cause harm to the terminal, computer or other device connected to this port!

Busy Signal:

S1: Jumper fitted = BUSY signal on until end of ACK signal. No jumper fitted = ACK after BUSY signal (as on previous versions of this board).

S2/S3[1]: Jumper fitted on **S-2** = BUSY signal on falling edge of /STROBE signal (i.e. according to specifications)
Jumper fitted on **S-3** = BUSY signal on rising edge of /STROBE signal (i.e. as on previous versions of this board).

[1]. A jumper *must* be fitted on either **S-2** or **S-3**.

INTERFACES, cont'd.

Parallel Interface Board, cont'd.

UBI offers a 3 metres (9.8 ft.) long ready-made parallel communication cable (36-p male Centronics – DB25 male).
Article No. 1-010001-00

Connector configuration

The connector is the standard female 36-pole Centronics type. The mounting holes are connected to chassis ground.

Pin	Signal	Dir.	Remarks
1	/STROBE	In	
2	DATA 0	In	
3	DATA 1	In	
4	DATA 2	In	
5	DATA 3	In	
6	DATA 4	In	
7	DATA 5	In	
8	DATA 6	In	
9	DATA 7	In	
10	ACK	Out	
11	BUSY	Out	
12	PE	Out	See note!
13	SELECT	Out	
14–15	–	–	not used
16–17	GND		
18	+ 5V	Out	If strap fitted on P-2. Max. 200 mA.
19–30	GND		
31	/INPRM	In	
32	/ERROR	Out	
33–35	–	–	not used
36	/SLCTIN	In	
37–38	GND		Housing

Note:
The PE signal (Paper End) on pin 12 requires an error-trapping routine to be included in the UBI Fingerprint software, activating the BUSY and READY statements. Here is an example on how such a routine may be written:

```
10   IF (PRSTAT AND 4) THEN GOSUB 1000
20   IF (PRSTAT AND 4) = 0 THEN GOSUB 2000
. . . .
. . . .
. . . .
1000 BUSY4
1010 RETURN
2000 READY4
2010 RETURN
```

*Also see BUSY and READY statements and PRSTAT function in the UBI Fingerprint manuals.*

INTERFACES, cont'd.

Industrial Interface Board

The Industrial Interface Board adds one serial communication port and one connector with four IN and four OUT ports to the standard serial communication port "uart1:".

The purpose of this board is primarily to provide an interface between the printer and various types of external equipment, like gates, transporters, wrappers etc. The input and output signals can be read by means of the *UBI Fingerprint* function PORTIN and output signals can be controlled by PORTOUT ON/OFF statements.

The Industrial Interface Board can either be bought separately as a kit complete with installation instructions, or be factory installed.
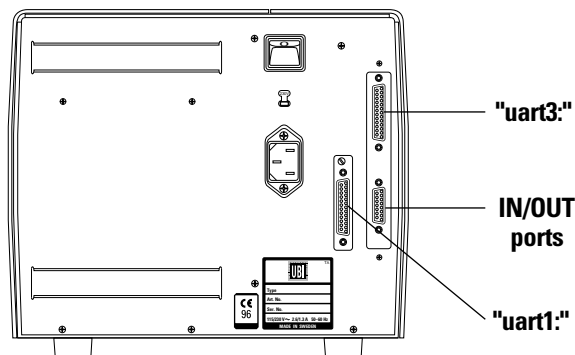

With the Industrial Interface Board installed, the following means of communication becomes available:

"uart1:"	*Fitted as standard on the printer's CPU pcb.*
RS 232C	Standard.
RS 422 or 20 mA CL	Option. Additional circuits required.

"uart3:"	*Fitted on the Industrial interface pcb.*
RS 232C	

IN/OUT connector	*Fitted on the Industrial interface pcb.*
4 input channels	The software can read the status of four different input signals.
4 output channels	The software can set four different output signals to either open or closed contact and also read their status.

INTERFACES, cont'd.

Industrial Interface Board, cont'd.

"uart3:"

I/O connector

P-1

P-8

P-7

P-6

P-2
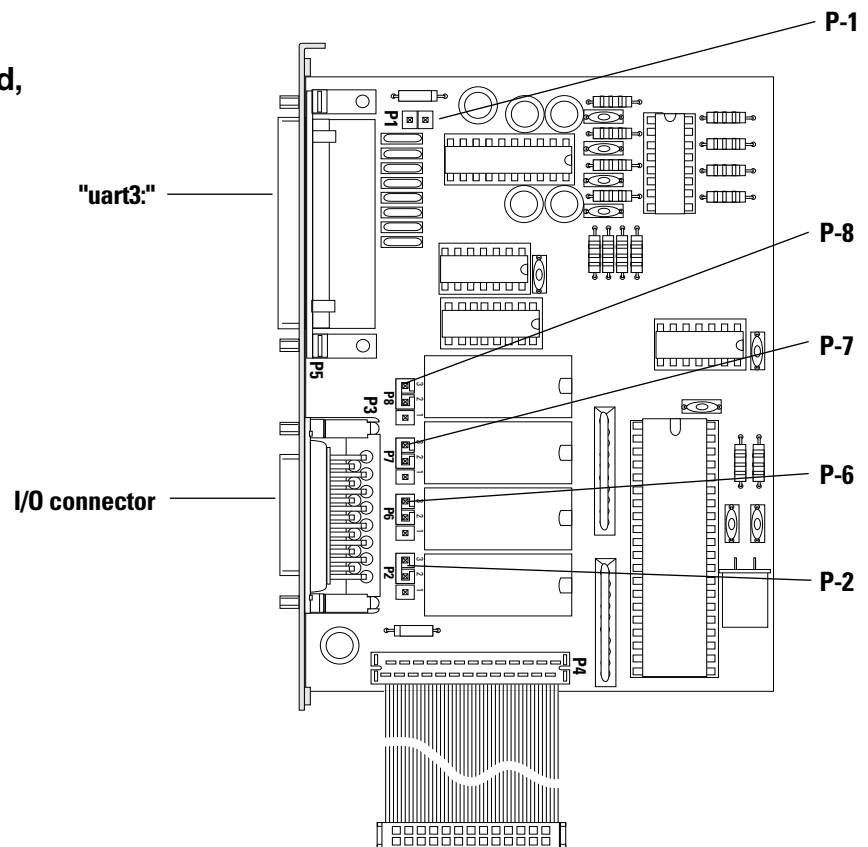
Communication Port "uart3:"

RS 232C:

There are no straps for controlling the RS 232C interface on "uart3:".

External +5V:

External +5V (max. 200 mA) can be made available on pin 16 by fitting a strap on **P-1**.

Be careful not to enable this option unintentionally, which may cause harm to the connected terminal, computer or other device.

IN/OUT connector

In/Out port 201-204:

One relay for each port switches the OUT signal to high or low as PORTOUT ON/OFF statements are executed in the program.

Four straps, **P-2**, **P-6**, **P-7** and **P-8**, control the relation between relay and output signal on output ports **201**–**204** respectively:

PORTOUT stmt	Strap between pins	OUT signal
PORTOUT (<nexp>) ON	1–2 (lower position)	Open
PORTOUT (<nexp>) ON	2–3 (upper position)	Closed
PORTOUT (<nexp>) OFF	1–2 (lower position)	Closed
PORTOUT (<nexp>) OFF	2–3 (upper position)	Open

INTERFACES, cont'd.

Industrial Interface Board, cont'd.
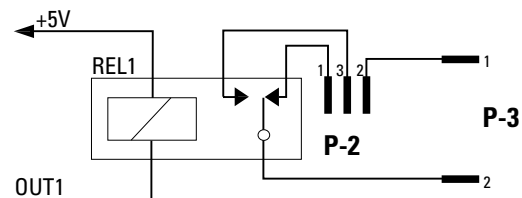
Connector configuration

"uart3:" is a DB25 female connector.
The **In/Out connector** is a DB15 female connector.

The mounting holes are connected to chassis ground.

Pin	"uart3:" DB25 female	Remarks	Pin	In/Out connector DB15 female	Remarks
1	GNDC	Cable shield	1	OUT 201	See example below
2	TXDB	Transmitted data from printer	2	OUT 201	
3	RXDB	Received data to printer	3	OUT 202	
4	RTSB	RTS from printer	4	OUT 202	
5	CTSB	CTS to printer	5	OUT 203	
6	DRSB	DSR to printer	6	OUT 203	
7	GNDI	Signal ground	7	OUT 204	
8	–	not used	8	OUT 204	
9	–	not used	9	IN 101	See example below
10	–	not used	10	IN 101	
11	–	not used	11	IN 102	
12	–	not used	12	IN 102	
13	–	not used	13	IN 103	
14	–	not used	14	IN 104	
15	–	not used	15	IN 103/104	
16	+5VEXT	+ 5V max 200 mA*			
17	–	not used			
18	–	not used			
19	–	not used			
20	DTRB	DTR permanently high			
21	–	not used			
22	–	not used			
23	–	not used			
24	–	not used			
25	–	not used			

*/. If strap fitted on P-1

OUT signals are controlled by means of **PORTOUT (<nexp>) ON|OFF** statements.

IN and **OUT** signals are read by means of **PORTIN (<nexp>)** functions.

Also see *UBI Fingerprint* manuals.

Example of an OUT port

POWER: max. 240VA
VOLTAGE: max. 60VAC
CURRENT: max. 4A

Example of an IN port
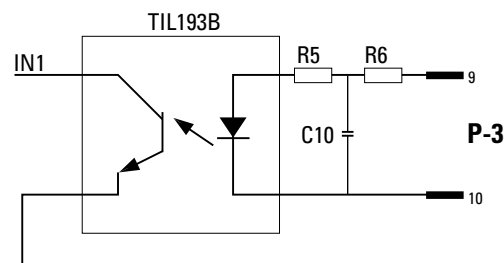
VOLTAGE: 10–48V
CURRENT: 3–16mA

NOTES