CONTENTS

UBI EasyCoder 91
Instruction Book
Edition 2, January 1996
Art. No. 1-960389-01

Continued!

CONTENTS, cont'd.

Programming

Continued!

CONTENTS, cont'd.

Information in this manual is subject to change without prior notice and does not represent a commitment on the part of UBI Printer AB.

NOTICES REQUIRED BY NATIONAL AUTHORITIES

FCC Notice (United States of America)

WARNING:

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

DOC Notice (Canada)

Canadian Dept. of Communication
REGULATIONS COMPLIANCE
(DOC-A)

This digital apparatus does not exceed the class A limits for radio noise emissions from a digital apparatus as set out in the radio interference regulations of the Canadian Department of Communication.

Ministère des Communications du Canada
CONFORMITE DE REGLEMENTS
(DOC-A)

Le présent appareil numérique n´émet pas de bruits radio-électriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le règlement sur brouillage radioélectrique édicté par le Ministère des Communications du Canada.

VDE Notice (Germany)

ALLGEMEINE VORSCHRIFT:

Reparaturen oder sonstige Eingriffe, die sich nicht auf normale Bedienung der Maschine beziehen, dürfen ausschließlich nur von einem **ausgebildeten**, **zuständigen Fachmann** vorgenommen werden.

PREFACE

UBI EasyCoder 91 is a series of dedicated Direct Thermal and combined Thermal Transfer/Direct Thermal printers.

Thermal transfer printing means that labels, tickets, or tags are printed by transferring ink from a special transfer ribbon onto plain paper or other receiving materials by means of heat from a large number of small resistors (dots) on the printhead (8 dots/mm = 203 dots/inch).

Direct thermal printing uses the heat from the same type of printhead to create patterns in heat-sensitive paper.

The printers are simple to operate, and a cost effective solution for your low volume label printing requirements. Their small footprints make them easy to fit in anywhere and an optional battery pack allows use in mobile applications. By means of an optional Keyboard/Display Unit, they can also by provided with a stand-alone capacity, i.e. be operated disconnected from any computer.

The *UBI EasyCoder 91* Direct Thermal and Direct Thermal/Thermal Transfer printers each come in two main models:

- The *UBI EasyCoder 91 Tear-Off Model* is intended for printing self-adhesive labels fitted on backing paper (liner), or tags from a strip of paper with stamped detection slots and possibly some kind of perforation. The labels and tags are torn off by hand against the printer's tear off edge. Self-adhesive labels will remain attached to the backing paper and must be manually removed.
- The *UBI EasyCoder 91 Peel-Off Model* is designed for printing on self-adhesive labels fitted on backing paper (liner) and features a peel-off device, which automatically separates the labels from the backing paper, and a label taken sensor, which holds the printing of the next label until the previous label has been removed.

EasyCoder 91 printers are designed to work with any computing device capable of producing ASCII outputs. The connection is through either a parallel Centronics port or a serial RS 232C port.

All *EasyCoder 91* printers are delivered with a 3.5" floppy disk containing a printer driver for *Microsoft Windows 3.1x*. (A printer driver for *Windows 95* will soon be available). The driver makes it possible to produce bitmapped printouts from most standard programs run under *MS Windows*, e.g. *MS Word*, *MS Excel* or *PC Paintbrush*.

Label design becomes an easy task with *UBI LabelShop*, a "what-you-see-is-what-you-get" label-editing program running under *MS Windows 3.1x* and *Windows 95* and compatible with the full range of *UBI EasyCoder* printers, including *EasyCoder 91*.

EasyCoder 91 can also be run by means of special control commands described at the end in this manual. These control commands use short lines of ASCII characters to format the labels, enter text and bar codes and control the printing, making it possible to use a terminal, or a personal computer, that does not operate under *MS Windows*.

This manual describes:
Software version 2.23
Windows Driver version 1.71

TECHNICAL DATA

General
Direct thermal or direct thermal/thermal transfer printing on self-adhesive labels or non-adhesive tags.
Internal paper roll or external fan-fold supply.
Tear-off or peel-off operation.
Built-in label taken sensor (LTS) in Peel-Off model.

Dimensions
Length:	256 mm	(10.08")
Width:	212 mm	(8.35")
Height:	141 mm	(5.55")

Net Weight
Printer only, excl. power supply, paper roll, transfer ribbon, and options: 1.55 kgs (3.42 lbs.)

Mains
Separate power supply unit;
Input: 100 – 240 VAC/50 – 60 Hz, 2.0 A
Output: 20 V DC, 2.5 A (Peak: 5A)

Interfaces
1 × RS 232C serial (DB-9) plus 1 × Centronics parallel

Serial Communication
Variable; XON/XOFF and DSR/CTS protocols

Ambient Temperature
Operation: +5°C to +40°C (+40°F to +104°F)
Storage: -40°C to +60°C (-40°F to +140°F)

Humidity
10 – 90% RH, non-condensing. Ventilation: Free air

Printhead Density
8 dots/mm (203.2 dots/inch)

Printable Area
Width: Max. 104.0 mm (4.09")
Length (depends on image buffer size):

106 kbyte:	Max. 127 mm	(5.00")	Default, 1 RAM
119 kbyte:	Max. 143 mm	(5.65")	Max. at 1 RAM
250 kbyte:	Max. 300 mm	(11.81")	Max. at 2 RAM
513 kbyte:	Max. 616 mm	(24.25")	Max. at 4 RAM

Direct Thermal Paper/Receiving Face Materials

Roll diameter:	Max. 96.5 mm	(3.80")	
Core diameter:	Min. 38.1 mm	(1.5")	
Paper Width:	Max. 118.1 mm	(4.65")	
	Min. 28.6 mm	(1.12")	
Label Length:	Max. 616 mm	(24.25")	
	(depending on image buffer size)		
	Min. 9.7 mm	(.38")	With LTS
	Min. 12.7 mm	(.5")	Without LTS
Thickness:	0.06 – .25 mm	(.003 – .010")	

Thermal Transfer Ribbons
UBI transfer ribbons only (wax, hybrid, and resin) in widths of 60, 90, and 110 mm (2.36, 3.54, and 4.33").

Printing Speed
Selectable 25, 38, or 50 mm/sec. (1, 1.5, or 2 "/sec.)

Noise Level
≈ 45 dB (A)

Print Directions
Text, bar codes, and graphics can be printed in four directions

Fonts
5 resident alphanumeric fonts, which can be magnified up to 8 times horizontally and 9 times vertically

Standard Bar Codes
Code 39 std. or extended
Code 39 w. check digit
Code 93
Code 128UCC case code
Code 128 A, B, C
Codabar
EAN 8 std, 2 digit add-on, or 5 digit add-on
EAN 13 std, 2 digit add-on, or 5 digit add-on
German Postcode
Interleaved 2 of 5
Interleaved 2 of 5 w. check digit
Interleaved 2 of 5 w. human readable check digit
Postnet 5, 6, 8 & 11 digit
UCC/EAN 128
UPC A std, 2 digit add-on, or 5 digit add-on
UPC E std, 2 digit add-on, or 5 digit add-on
UPC Interleaved 2 of 5

Two-Dimensional Codes
PDF-417
MaxiCode

Formatting
Print formats can be preprogrammed in RAM

Memory
256 kbyte EPROM
Standard 128 kbyte RAM,
expandible to 256 or 512 kbyte by means of a Memory/Real Time Clock Cartridge (see "options")

Keyboard
One "Feed" button

Display
1 multi-colour LED indicator

Options
Memory/Real Time Clock Cartridge (+128 or 384 kbyte RAM)
Battery Pack
Keyboard/Display Unit
Serial Communication Cable (RS 232C)
Parallel Communication Cable (Centronics)
Black Mark Sensor (factory installed option only)

- UBI reserves the right to change the specifications without prior notice. -

UNPACKING

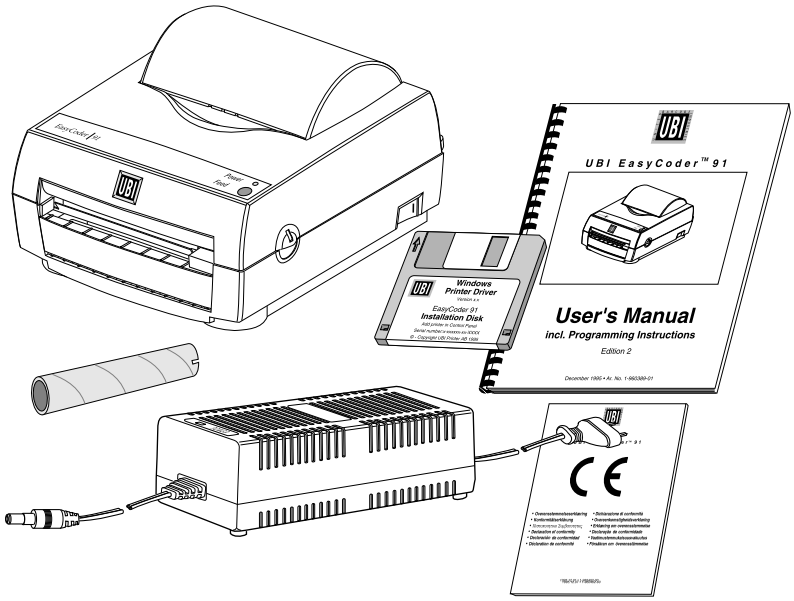
Parts Check List

> ***CAUTION!***
> *The discharge of electrostatic energy accumulated on the suface of the human body or other surfaces can damage or destroy the printhead or electronic components used in this printer. Avoid touching the electrical connectors while unpacking and setting up the printer.*

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

1. Open the box and lift up the power supply unit, the plastic bag containing manuals and floppy disk, and other parts.
2. Remove the upper foam-plastic shock absorber and lift up the printer. Check that no visible damage has occurred during the transportation. Keep the packing material in case you need to move or reship the printer.
3. Check to make sure any options ordered are included.
4. Check the accessories included in the delivery. In addition to possible options, the box should contain:
   - 1 *UBI EasyCoder 91* printer
   - 1 Power Supply unit w. separate power cord
   - 1 Empty ribbon core
   - 1 *UBI EasyCoder 91* User's Manual (this manual)
   - 1 CE Declaration of Conformity booklet
   - 1 3.5" floppy disk containing U*BI EasyCoder 91 Windows Driver*.

   Note that no cable for printer-to-computer connection is included, unless ordered separately.



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.

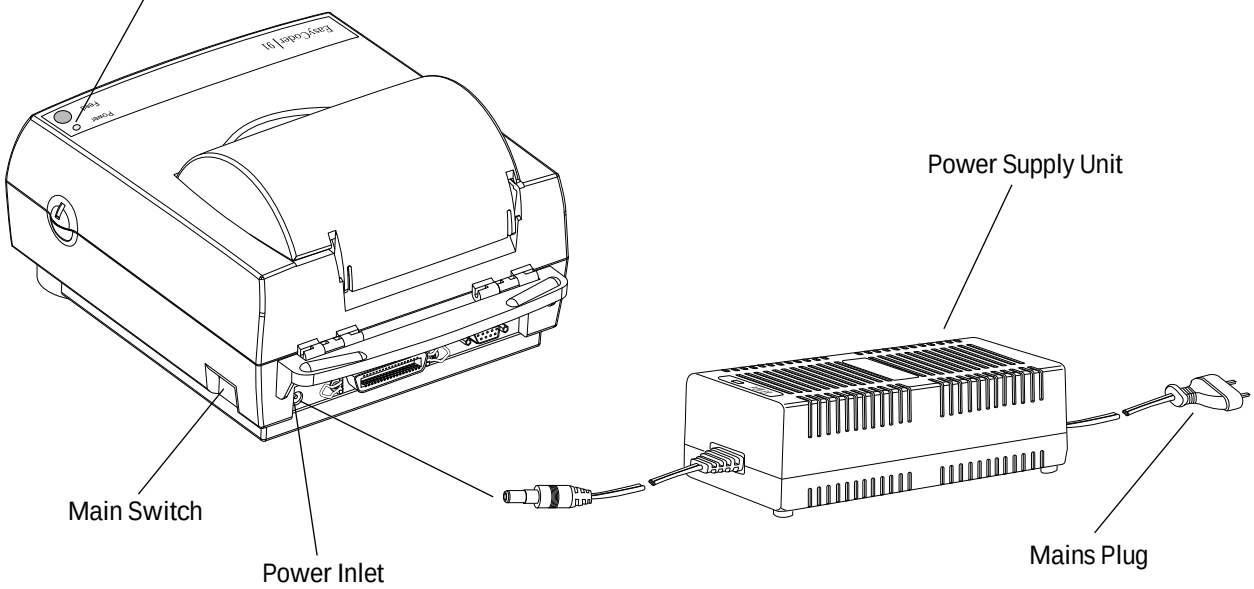
MAINS CONNECTION

WARNING!
The printer and power supply unit must never be operated in a location where either one can get wet.
Personal injury could result!

1. Place the printer in a suitable location that allows easy access to printer labels and preferably also easy reload of paper stock and transfer ribbon. The printer should never be operated while resting on its side or upside down.
2. Place the power supply in a suitable location between the printer and an electrical outlet, e.g. on the floor. The power supply can be used for 100 – 240 V AC, 50 – 60 Hz. The configuration of the mains plug differs according to national standards.
3. Check that the printer's power switch is off (O).
4. First, fit the round connector into the power inlet on the printer's rear plate. Then connect the mains cord between the power supply and an electrical outlet.
5. The power can be turned on/off by means of the main switch situated on the right side of the printer. The "Power" control lamp on the printer lights red or green to indicate that the power is on.

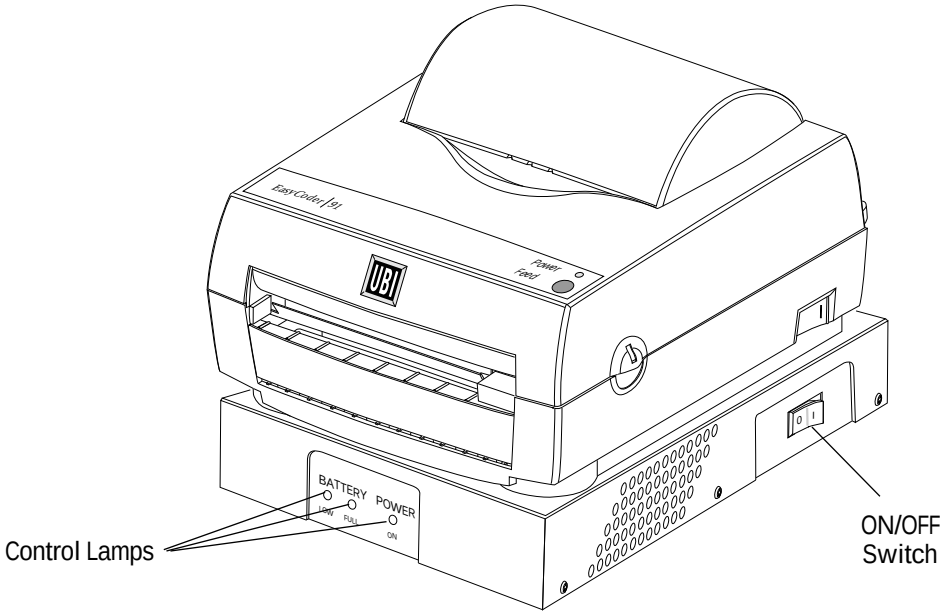
Control lamp

No light:	Power off
Red light:	Power on – Out of paper or ribbon
Green light:	Power on – Ready to print
Orange light:	Error. See chapter "Troubleshooting"



BATTERY PACK (option)

The *EasyCoder 91* can be supplemented by an optional battery pack, which makes the printer independent of a mains supply. The battery pack allows the printer to be operated approximately 8 hours at a 20% duty cycle before the battery pack must be recharged for approximately 13 hours.



Operation

1. Operate the printer normally until the battery low light turns on. You should be able to print for an average of eight (8) hours without battery recharge.
2. Switch the battery pack off when it is not connected to the printer or to a charging power source.
3. The battery pack is recharged by connecting it to the printer's transformer unit. The charging time is approximately thirteen (13) hours. The battery pack must be ON to recharge.
4. The battery pack can also be recharged while connected to an active printer ***if*** the battery pack is connected to the transformer and the battery pack switch is ON.

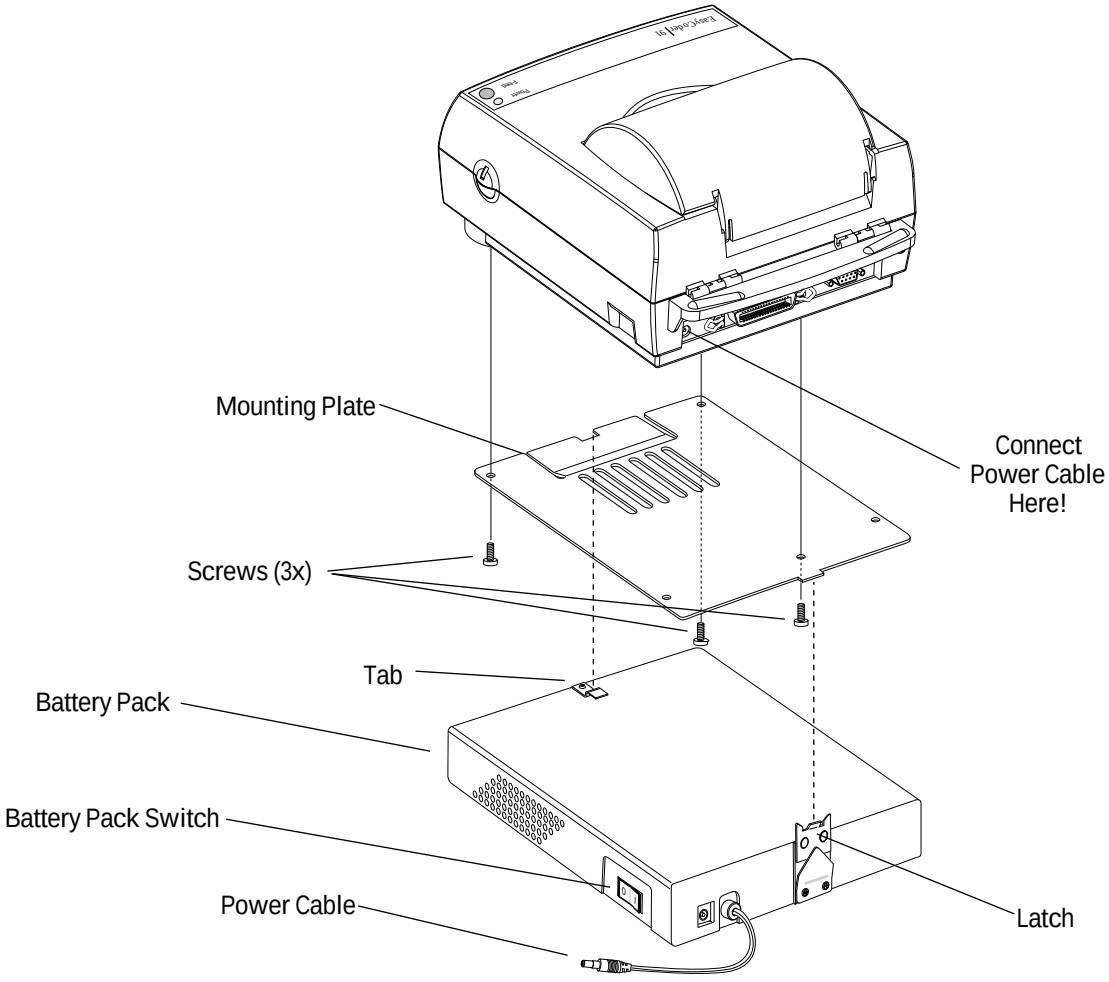
Continued!

BATTERY PACK (option), cont'd.

Installation

To install a battery pack, proceed as follows:

1. Disconnect the printer both from transformer and computer.
2. Position the mounting plate with the vents facing front, and secure it with three (3) screws included in the kit.
3. Place the battery pack on a flat surface with the latch and cable pointing to the rear.
4. Slide the front of the mounting plate into the mounting tab on the front of the battery pack, then press the back of the printer down into the rear latch of the battery pack.
5. Plug the battery pack into the power connector socket of the printer.
6. Switch ON the battery pack switch located its the right side.
7. Reconnect the printer to the computer and switch ON the printer's power switch.



MEMORY CARTRIDGE (option)

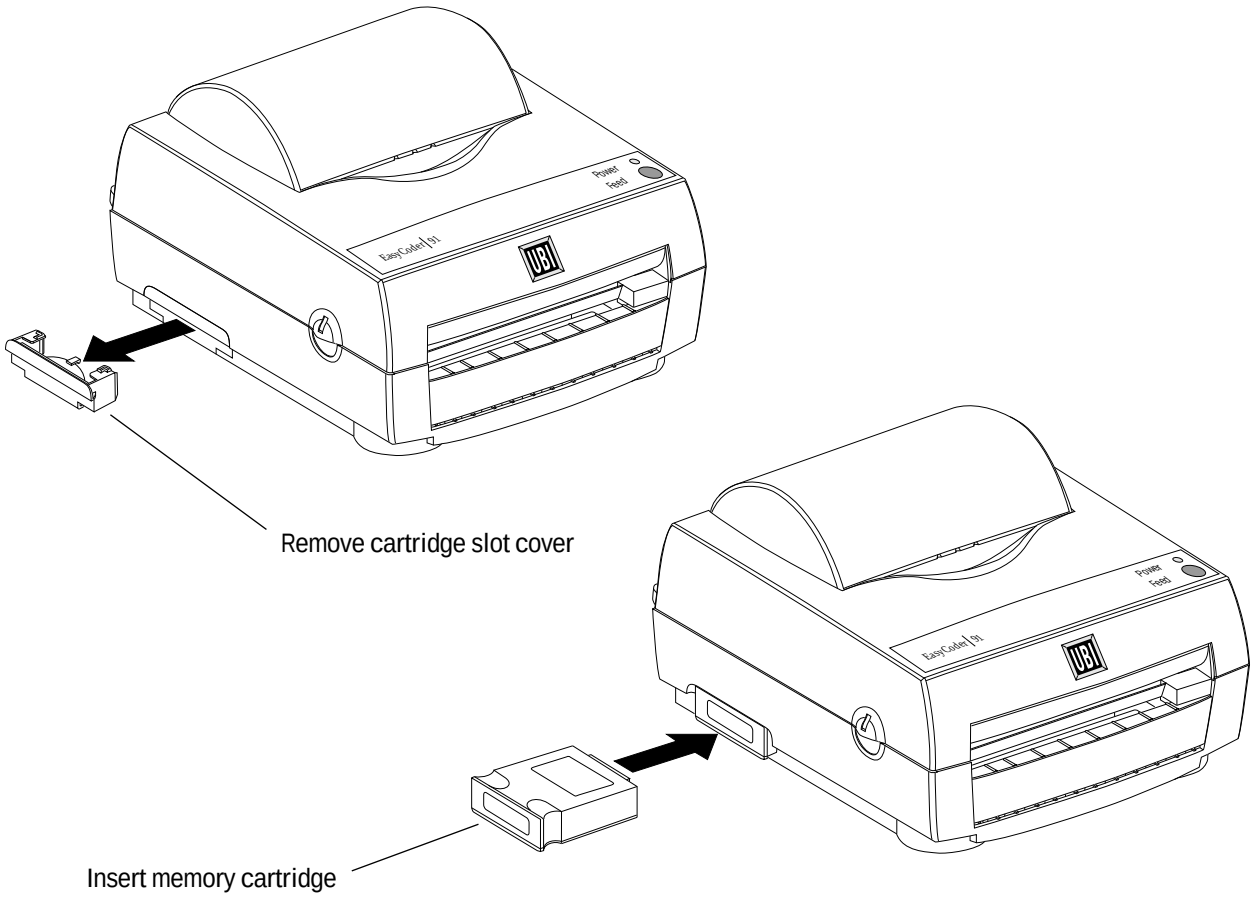
WARNING!
When fitting or removing a memory cartridge, the power to the printer must be off!

Before using a memory cartridge for the first time, the printer's memory may need to be formatted.
Refer to the M command in the Programming part of this manual.

As an option, the *EasyCoder 91* can fitted with an easily exchangeable memory cartridge that contains one or three memory expansion RAM packages plus a real-time clock circuit (RTC). Each RAM package has a size of 128 kbyte, giving the printer a RAM memory size of 256 or 512 kbyte including the standard 128 kbyte RAM fitted on the CPU board.

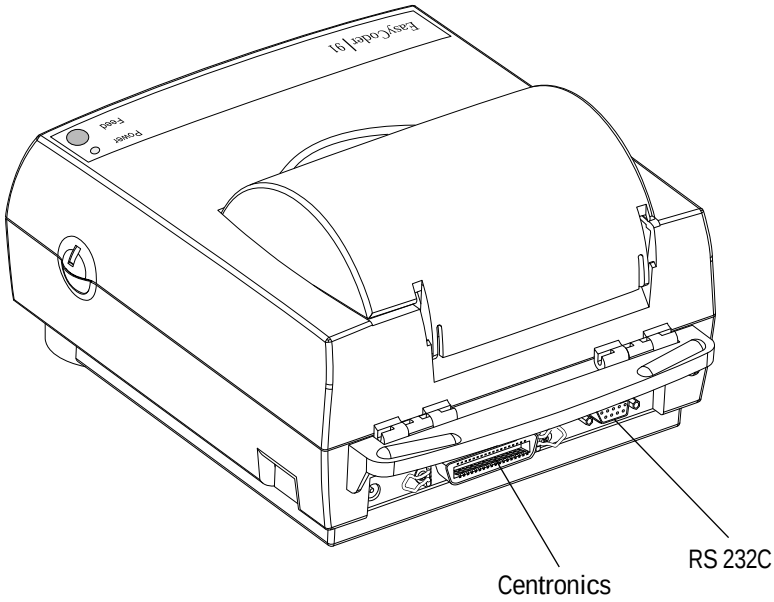
Installation of Cartridge:

1. Ensure that the power switch on the printer is off (0).
2. Remove the cartridge slot cover located on the left side of the printer.
3. Insert the memory cartridge – label side up – into the cartridge slot. Push firmly to seat the cartridge.
4. Turn on the printer.



COMPUTER CONNECTION

EasyCoder 91 is fitted with a 36-p female Centronics connector for the parallel interface port and a DB9 female connector for the RS 232C serial interface port. You can have cables connected to both of these ports simultaneously, but only one can be used at a time.



Centronics Parallel Interface

If you intend to use the *Windows Driver* (see pages 13–22), choose the parallel Centronics interface, which has DSTB to printer and BUSY to host handshake signals.

The parallel interface can also be used for programming the printer by means of the control program described later in this manual. However, prompts and other information from printer to host cannot be transmitted, since the parallel interface is one-way only.

RS 232C Serial Interface

The serial RS 232C channel can be used to run the control program described later, but is not suited for the *Windows Driver*.

The RS 232C communication setup is variable by means of the **Y** command (see page 120). Use the Test Mode (see page 32) to check the printer's present setup (bold letters indicate default setup).

Baud rate ..... : 1200, 2400, **9600**, or 19200
Parity ..... : **None**, Odd, or None
Data bits ..... : 7 or **8**
Stop bits ..... : **1** or 2
Flow control ..... : XON/XOFF and DSR/CTS

Cables

No communication cables are included in the delivery unless specifically ordered. For pinout specifications, please refer to Appendix 1.

UBI WINDOWS DRIVER INSTALLATION

Step-by-step Instructions

Note: This driver uses features that are specific to Microsoft Windows 3.1x and will not work with Windows 3.0 or earlier versions.

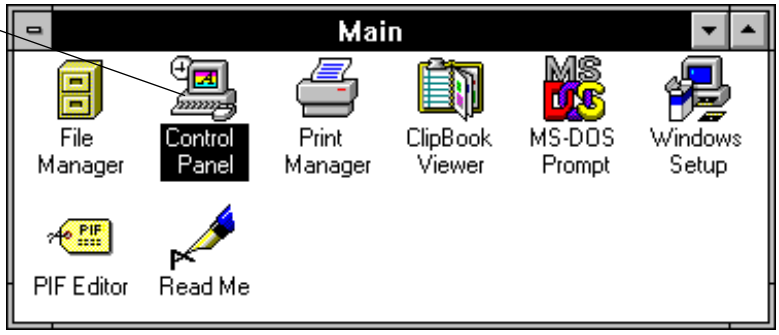
A printer driver for Windows 95 will soon be available.

The *Windows Driver* for *UBI EasyCoder 91* operates under *Microsoft Windows 3.1x* and makes it possible to print labels from any *MS Windows* application, such as *Microsoft Word*, *Paintbrush*, or *Excel* and from *UBI's* own label-design WYSIWYG*-program *UBI LabelShop*. The *Windows Driver* is stored on a 3.5" floppy disk included in the delivery.

Install the *UBI Windows Driver* in *Microsoft Windows 3.1x* as follows:

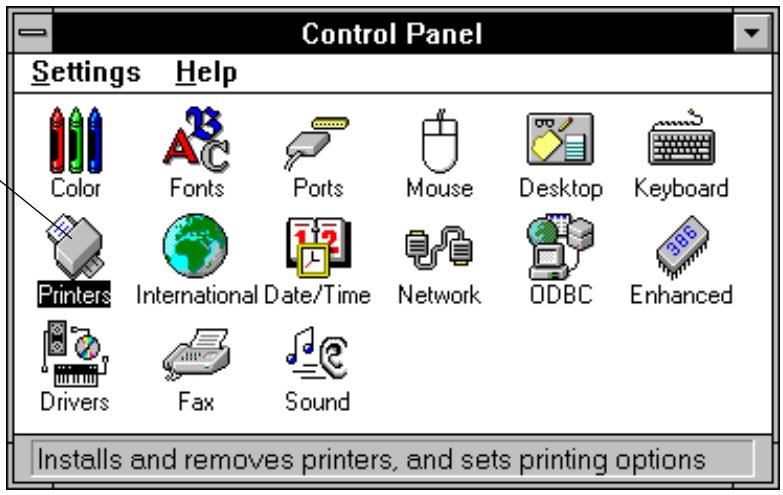
- Open *Microsoft Windows* in your PC.
- In the ***Program Manager***, open the ***Control Panel*** by double-clicking its icon.

Double-click *Control Panel* icon



- In the ***Control Panel*** window, double-click the ***Printers*** icon.

Double-click *Printers* icon



**/. WYSIWYG = What You See Is What You Get.*

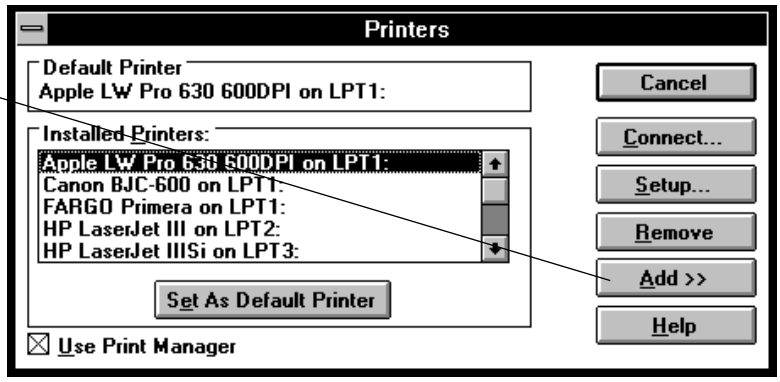
Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

Step-by-step Instructions, cont'd.

- The ***Printers*** dialogue box shows all presently installed printer drivers in a scroll box. To install a new driver, such as the *EasyCoder 91* printer driver, click the ***Add>>*** button.

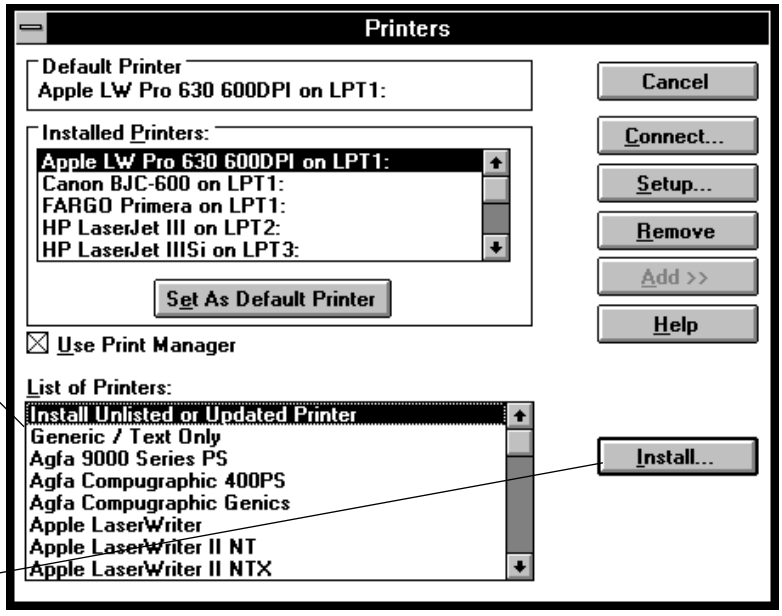
Add>> button



- The ***List of printers*** shows the printer drivers installed with *MS Windows 3.1x*. Since the *EasyCoder 91* printer driver is not included in this list, double-click the option ***Install Unlisted or Updated Printer***. Then click the ***Install...*** button.

Select *Install Unlisted or Updated Printer*

Click *Install...* button

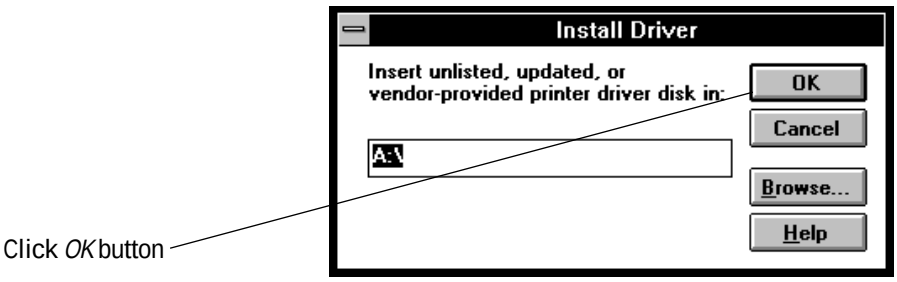


Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

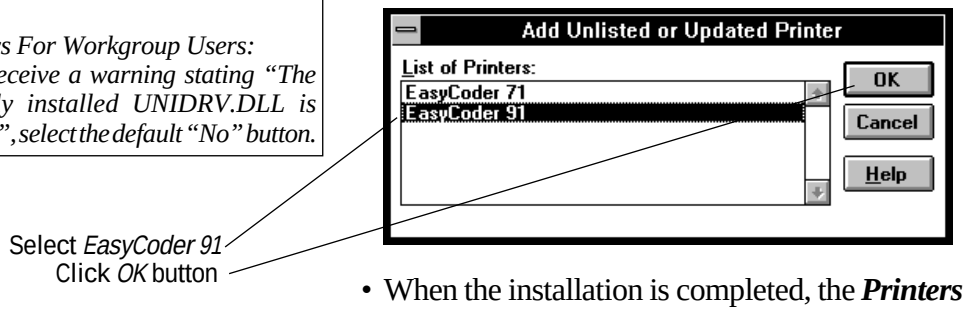
Step-by-step Instructions, cont'd.

- The ***Install Driver*** dialogue box will, by default, show drive **A:** as the path. Insert the *UBI Windows Driver* floppy disk in drive **A:** and click the ***OK*** button.

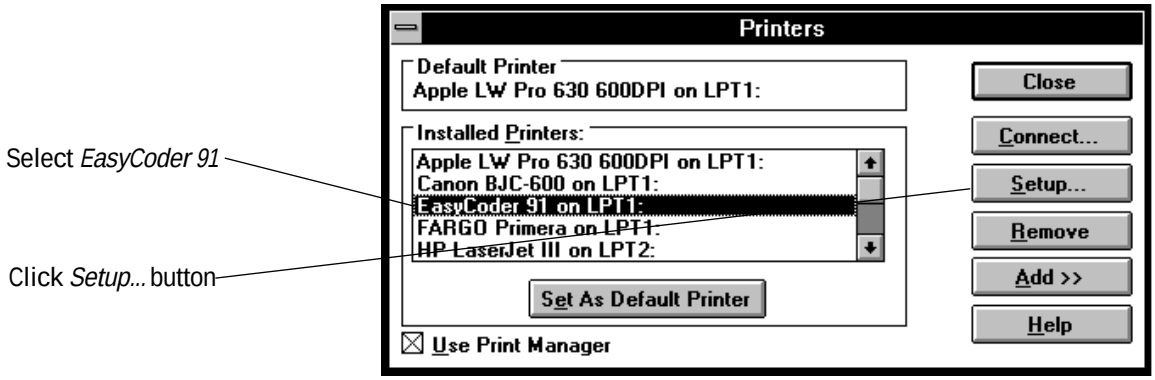


- Select ***EasyCoder 91*** and click the ***OK*** button.

Note!
Windows For Workgroup Users:
If you receive a warning stating "The currently installed UNIDRV.DLL is newer...", select the default "No" button.



- When the installation is completed, the ***Printers*** dialogue box is displayed again. In the ***Installed Printers*** scroll box, you can check that the *EasyCoder 91* printer driver has now been installed.
- Select the ***EasyCoder 91*** driver and click the ***Setup...*** button.



Note: In this dialogue box you can also select the EasyCoder 91 as default printer, if so desired, and enable or disable the use of the Windows Print Manager.

Continued!

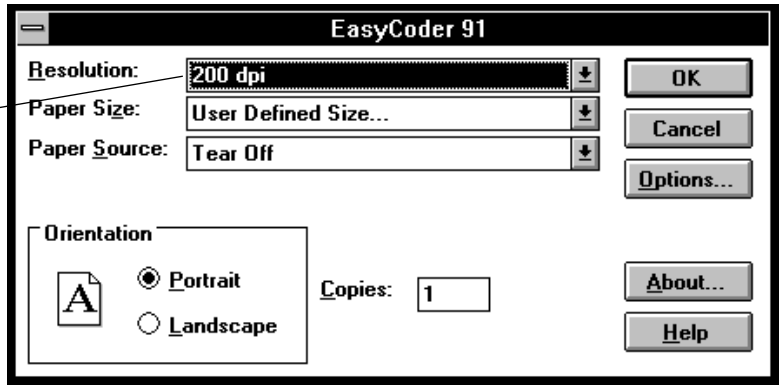
UBI WINDOWS DRIVER INSTALLATION, cont'd.

Step-by-step Instructions, cont'd.

- A dialogue box, that allows you to specify the printing characteristics of your *EasyCoder 91*, will be displayed:

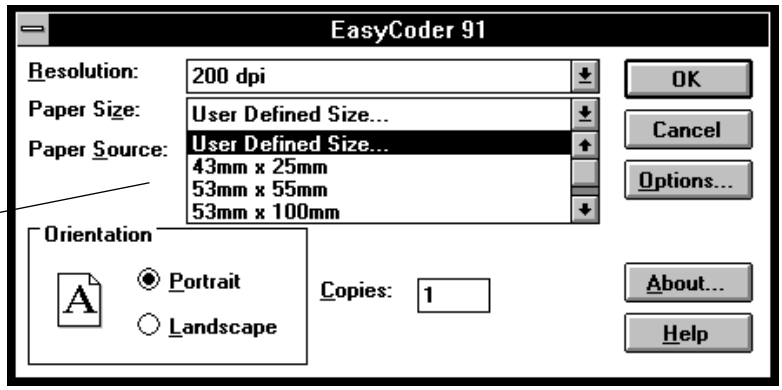
- ***Resolution*** is set to a **fixed** value of 200 dpi (dots per inch), which is equal to 8 dots/mm.

Resolution
(information only)

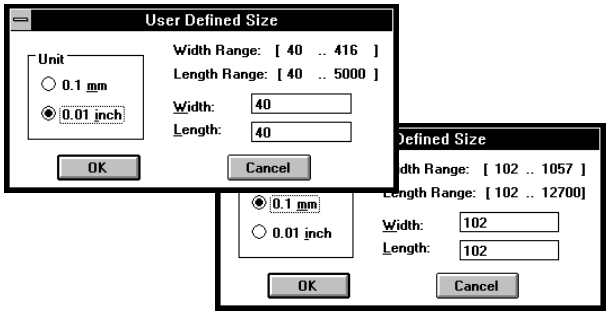


- The ***Paper Size*** scroll box contains a number of predefined label sizes, as well as a ***User Defined Size*** option:

Select *Paper Size*



Custom sized tags and labels can be specified in a special dialogue box, which appears when the ***User Defined Size*** option is selected: The size can be specified in inches ($^1/_{100}$) or millimetres ($^1/_{10}$). Select ***Unit***, enter the desired ***Width*** and ***Length*** values within the specified ranges, and click the ***OK*** button.



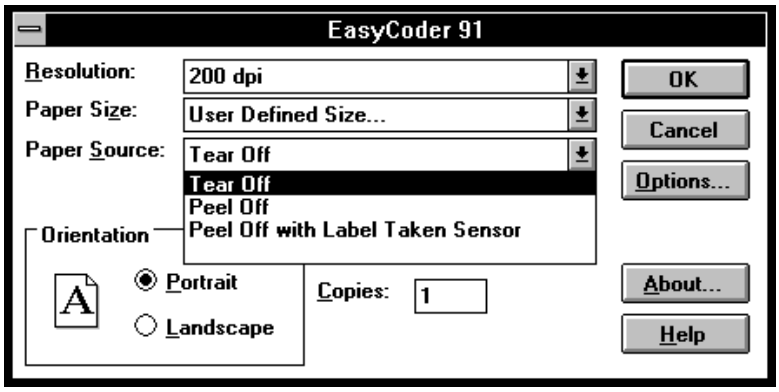
Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

Step-by-step Instructions, cont'd.

- The ***Paper Source*** scroll box allows you to choose between three types of operation:
  - Tear off
  - Peel off
  - Peel off with label taken sensor

  The last two options can only be used with the "Peel off" model of *EasyCoder 91*, see page 24.



- In the ***Orientation*** box, you can decide the direction of the print image when printed on the paper by clicking the appropriate radio button:
  - ***Portrait*** means e.g. that a line of text is printed across the label, upside down from right to left.
  - ***Landscape*** means e.g. that a line of text is printed along the web, starting with the first character in the line.

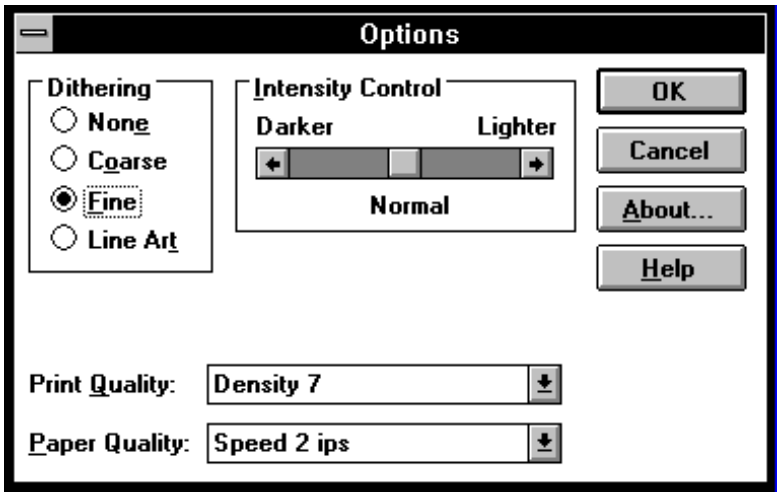
- The ***Copies*** box allows you to print a batch of labels or tags. If you have selected ***Peel off with Label Taken Sensor***, the printing of a new label put on hold until the previous one has been removed.

Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

Step-by-step Instructions, cont'd.

- Click the ***Options*** button. A new dialogue box will be displayed.



- ***Intensity Control*** and ***Dithering*** have no consequences for text and bar codes, but can be used to improve the printing of images.

- The ***Print Quality*** scroll box allows you to control the general darkness of the printout, which depends on type of printing, print speed and print media. The density can be set to a value between 0 and 15, where 0 is the lightest and 15 is the darkest. We recommend the following initial values (small corrections may be required after testing depending on print speed, condition of the printhead, and the characteristic of the thermal paper or combination between transfer ribbon and receiving face material):

		Rec. Density at 2"/sec.	
Direct Thermal Printing:			
UBI Economy		9	
UBI Premium		9	
Thermal Transfer Printing (Europe):			
GP91 ribbon	UBI Vellum paper	4	
GP91 ribbon	UBI Matte coated paper	4	
HP91 ribbon	UBI Matte coated paper	7	(default)
HP91 ribbon	Semi gloss paper	6	
HR91 ribbon	Synthetic gloss	8	
Thermal Transfer Printing (USA):			
GP92 ribbon	Bond paper	3	
GP92 ribbon	Matte coated paper	0	
HP92 ribbon	Matte coated paper	4	
HP92 ribbon	Semi gloss paper	8	
HR91 ribbon	Synthetic gloss	8	

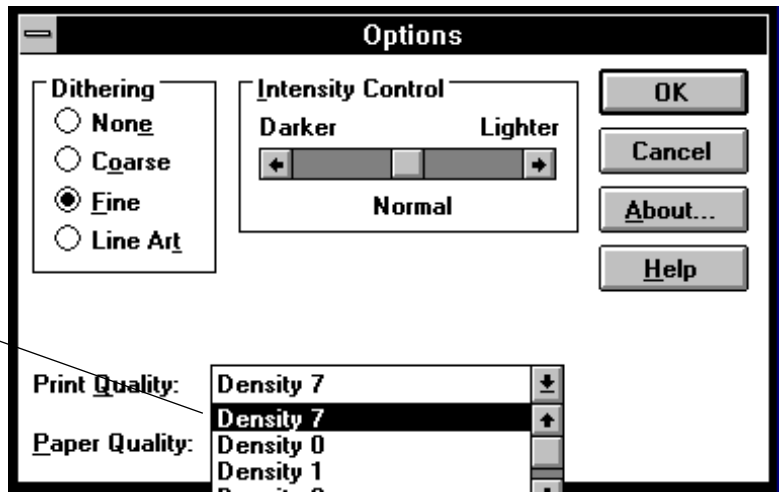
Click the appropriate value in the ***Density*** scroll box.

Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

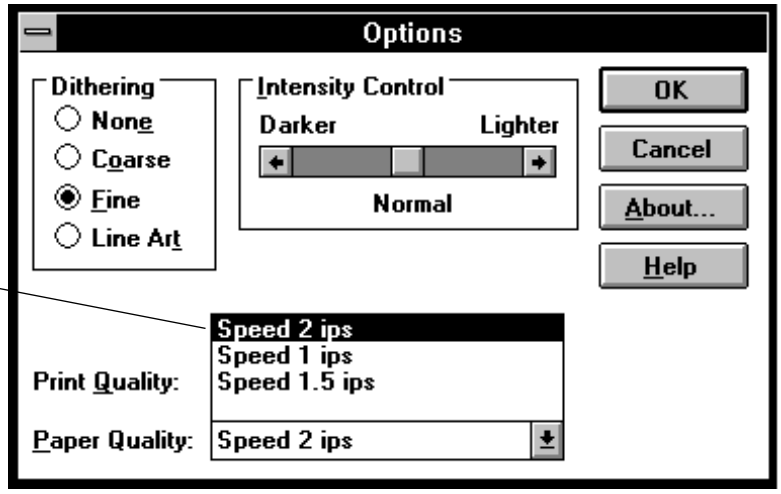
Step-by-step Instructions, cont'd.

Select *Density*

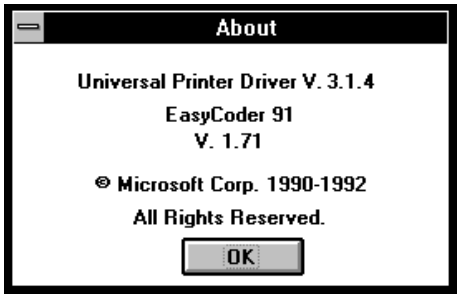


- In the ***Paper Quality*** scroll box, select the desired print speed:
  - 1 inch/sec. (≈ 25 mm/sec.)
  - 1.5 inch/sec. (≈ 38 mm/sec.)
  - 2 inches/sec. (≈ 50 mm/sec.)

Select *Print Speed*



- In the ***Options*** dialogue box, click the ***About...*** button. A new box is displayed:



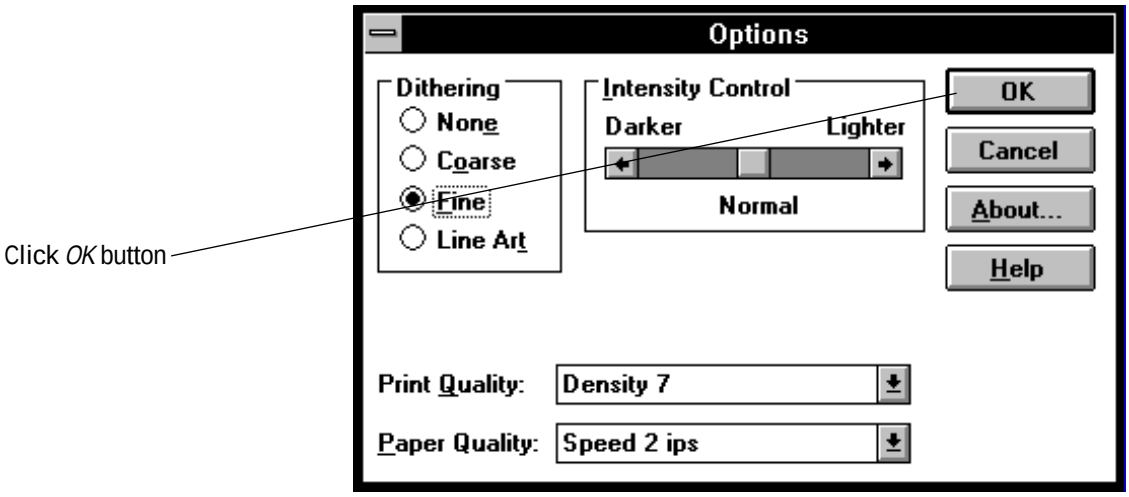
Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

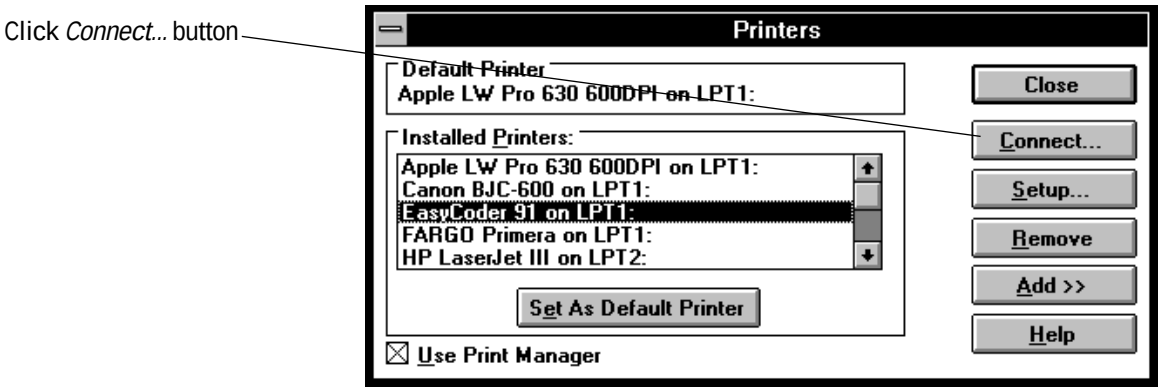
Step-by-step Instructions, cont'd.

- The ***About*** box gives information on the versions of the *Universal Printer Driver* and the *EasyCoder 91* printer driver installed in your PC. Click the ***OK*** button to return to the ***Options*** dialogue box.

- In the ***Options*** dialogue box, click the ***OK*** button to accept the new settings and return to the ***Printers*** box.



- In the ***Printers*** dialogue box, click the ***Connect...*** button.

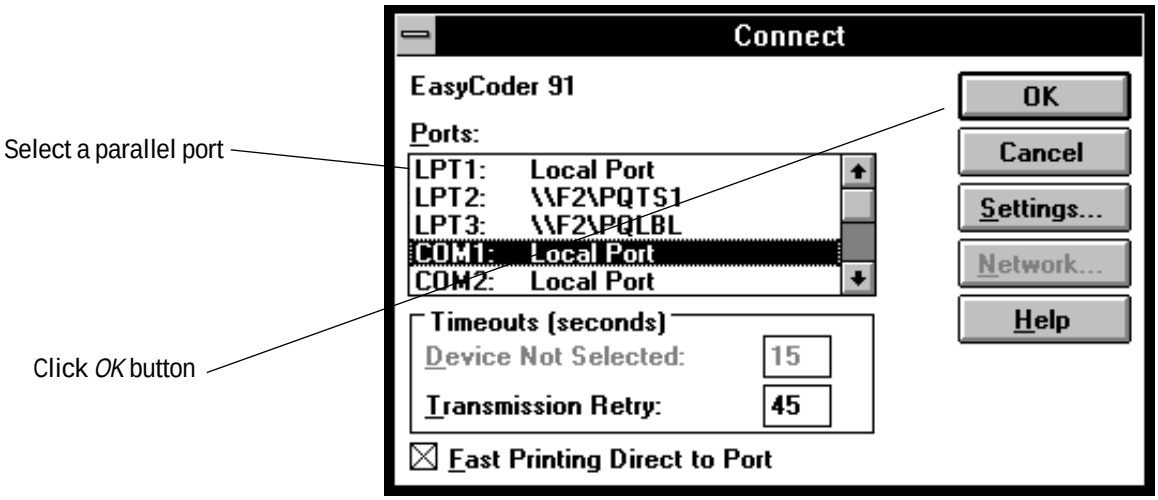


Continued!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

Step-by-step Instructions, cont'd.

- In the ***Ports*** scroll box, select the parallel port of your PC to which you intend to connect your *EasyCoder 91* (usually LPT1, see *Microsoft Windows User's Guide*), and click the ***OK*** button.



- Close the ***Printers*** dialogue box by clicking the ***Close*** button, exit *MS Windows* and turn off your PC.

- The *UBI Windows Driver* requires that a parallel communication cable is fitted between the 36-p Centronics connector on the printer and the selected parallel port on your PC, see page 12.

- Start up both the printer and the PC and the installation is completed.

ALSO SEE:
Application Notes
ON NEXT PAGE!

UBI WINDOWS DRIVER INSTALLATION, cont'd.

Application Notes

With a few exceptions due to the limited physical size of the label or tag, your *EasyCoder 91* will work like any matrix or laser printer operating under *MS Windows 3.1*. However, before starting, please read the following information.

Margins (left, right, top, and bottom)

It is important to set the margins in your application. These should normally be set to zero to allow for printing on the entire full-width label.

Narrow Labels and Left Margin

The printer will start printing at the extreme left edge of the label path (compare matrix or laser printers). However, labels in *EasyCoder 91* are centred to the middle. Thus, to print on a narrow label it will be necessary to set the left margin, i.e., move the print to the right.

In *UBI LabelShop*, you will have to specify a full width label and design the layout considering the actual width of the narrow label.

Label Length Autoadjust

The *EasyCoder 91* is automatically measuring the label length by feeding two blank labels the first time a form is sent to the printer from a Windows application after a power-up. This value is stored in the printer as long as the power is on.

Memory Restrictions

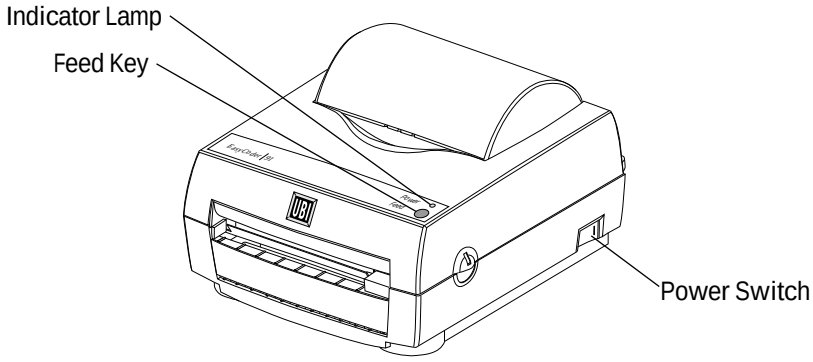
If the print image is too large to fit in the printer's memory, the "Power" control lamp on the printer will turn orange and an error message will appear on the screen. If this happens, turn printer back "on-line" by pressing the **Feed** key on the printer. When the "Power" lamp turns green, the printer is ready.

To avoid memory overflow, reduce the amount of data sent to the printer by limiting the label size. Do not design your label with a frame that prints along the edges of the label, or too far to the right side of the label.

To manage long labels, you can also increase the size of the image buffer by changing the memory allocation (see **M** command on pages 91–93) in combination with installation of a memory cartridge (see page 11).

CONTROLS AND INDICATORS

The EasyCoder 91 is controlled by the operator by means of a power switch, a "Feed" key and a multi-colour indicator lamp .



Power Switch

The power switch is located on the right side of the printer. The switch is marked with "0" for power **off** and "1" for power **on**. When the power is on, the indicator lamp on the printer's front will glow green, red or orange, see below.

Indicator Lamp

Colour	Meaning
Green	Power on Paper loaded (Ribbon loaded)
Red	Power on Out of paper (or ribbon)
Orange	Power on Error detected
Dark	Power Off

When the power to the printer is switched on, the indicator lamp will glow **green** if the printer is loaded with paper and – in case of thermal transfer printing – ribbon.

If the printer is out of paper and/or ribbon, the indicator lamp will glow **red**.

Any error condition, such as label stop sensor problems, paper jams or software errors, will be indicated by the lamp changing to **orange**.

Dark indicator lamp indicates power off.

If the indicator lamp fails to work as described above, please refer to the chapter *"Troubleshooting"* on page 34.

Feed Key

The Feed key can be used in two ways, **tapping** and **holding**. When power is first applied with paper (and ribbon) loaded, **tapping** the Feed key will initiate a form feed, i.e. paper will be fed out to the top of next label or tag.

When power is first applied with no labels loaded, **holding** the Feed key will cause the paper to be continuously fed out until the key is released. This mode is useful when loading a new paper supply.

After the paper has been threaded through the printer, **tapping** the Feed key 3 more times (for a total of 4 taps) will cause a form feed.

PAPER LOAD

General Information

IMPORTANT!
If the printer runs out of paper while printing, do not turn off the power during reload, or data will be lost!

The *EasyCoder 91* can print on heat-sensitive direct thermal paper and – in case of thermal transfer models – on non heat-sensitive receiving face materials, in the form of self-adhesive labels or non-adhesive tag. In case of non heat-sensitive face materials, a suitable thermal transfer ribbon must be used.

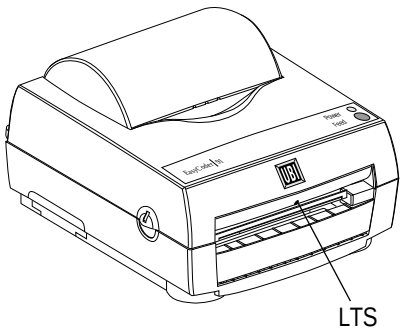
The paper stock can be accommodated inside the printer in the form of a roll, or be placed behind the printer and inserted through a slot in the cover (e.g. fan-folded tickets or tags).

Two models for different types of operation are available, *Tear-Off* and *Peel-Off*:

- Tear-Off Model
  Tear-off means that the paper is fed straight out from the front of the printer and can be torn-off by pulling it against a metal edge. Tear-off mode can e.g. be used for tearing off tags at the perforation, or backing paper between labels.
- Peel-Off Model
  The peel-off model can perform the same tasks as the tear-off model, but is also capable of peel-off operation. Peel-off means that self-adhesive labels are separated from the backing paper (liner) after printing. The labels are fed straight out from the printer, while the backing paper is fed out separately from a slot further down on the printer's front, from where it can be lead to e.g. a waste basket.

  Be careful when loading self-adhesive labels. If labels are not flat on the backing paper, the exposed edges can stick to your printer and cause problems.

  A built-in Label Taken Sensor (LTS) holds the printing until the previous label (or similar) has been removed from the printer's outfeed slot. As long as the sensor detects a label, the printer will be BUSY and cannot receive data from host. The LTS can be disabled by an **O** command, see page 95.



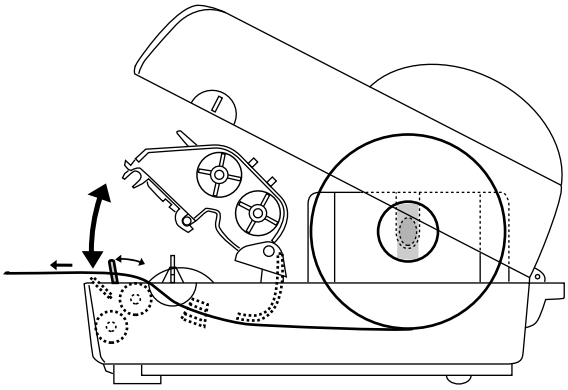
When switching between peel-off and tear-off operation, the paper feed must be readjusted by means of a software instruction (see **j** command on page 86).

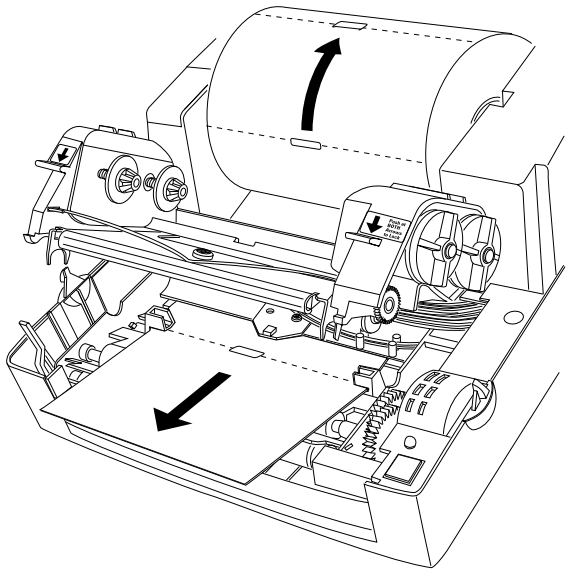
The *EasyCoder 91 Windows Driver* contains options for selecting the following modes of operation without any **j** or **O** commands having to be entered by the operator:
- Tear-off
- Peel-off with LTS enabled
- Peel-off with LTS disabled

Note!
For the sake of convenience, throughout this manual, the term "Paper" is used to describe various types of heat-sensitive direct thermal materials and non heat-sensitive receiving face materials for thermal transfer printing, i.e. also synthetic materials, metal foils, fabric, cardboard etc.

PAPER LOAD, cont'd.

Tear-Off Operation; Tags





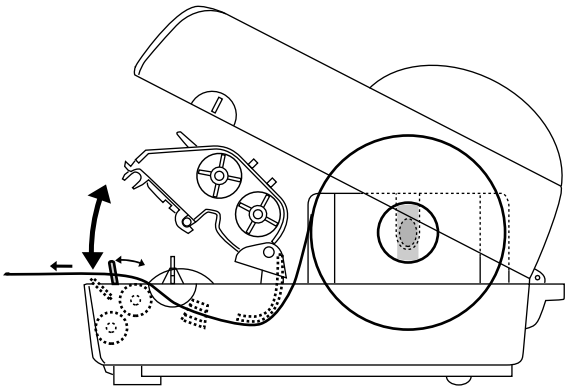
Loading Instructions:

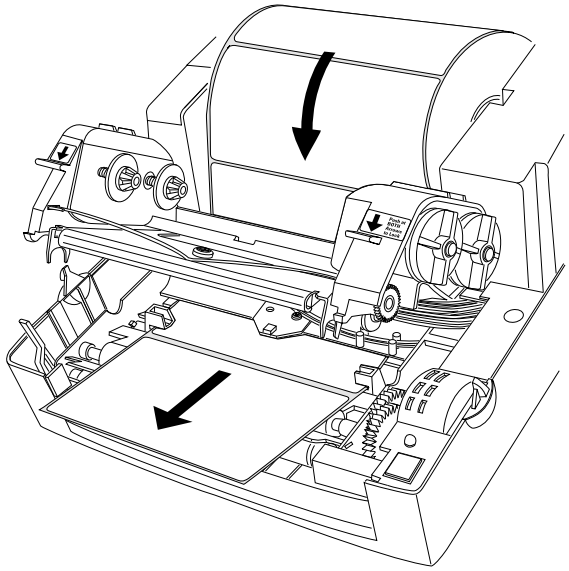
1. Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
2. Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
3. Remove possible remaining paper or empty paper core.
4. Place the spindle into the core of a fresh paper roll.
5. Place the paper roll and spindle in the open cover.
6. If loading paper for the first time after installation, or if changing to a different paper width, use the green wheel at the left side of the print mechanism to adjust the paper guides so their positions correspond to the width of the paper.
7. From the rear, insert the paper below the rounded rear wall of the print mechanism and between the paper guides until it protrudes in front of the tear-off edge.
8. Move the paper roll and spindle to the paper stock compartment and let the spindle rest in the slots on either side.
9. Check that the paper guides allow the paper to run smoothly without causing it to bulge, yet keep it firmly centre-aligned. If necessary, use the green wheel on the left side to fine-adjust.
10. If required, load a fresh supply of thermal transfer ribbon according to the instructions in the chapter *"Ribbon Load"*.
11. Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
12. Close the printer's top cover.
13. Tap the **Feed** key 4 times or until the indicator lamp glows green.
14. If the printer did run out of paper while printing, the printing will automatically be resumed. Else, tear off excessive paper by pulling it down against the tear-off edge.

HINT:
If you use the same paper width, you could reload the paper supply by just opening the transparent cover and insert the paper, while pressing the Feed key.

PAPER LOAD, cont'd.

Tear-Off Operation; Labels





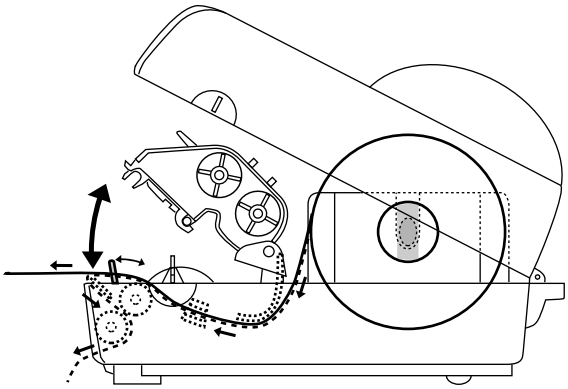
Loading Instructions:

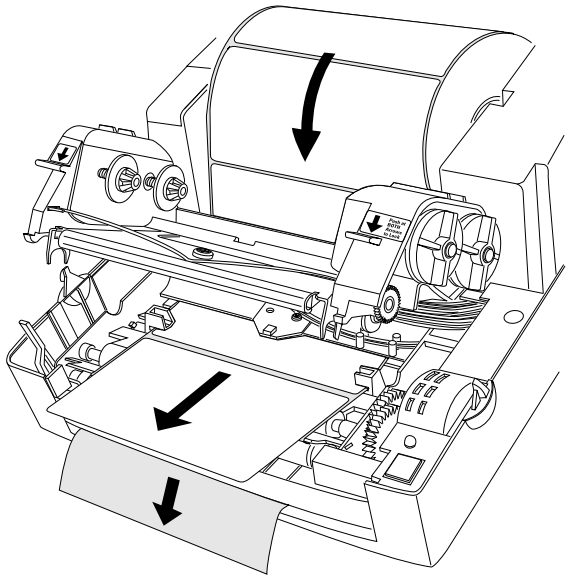
1. Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
2. Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
3. Remove possible remaining paper or empty paper core.
4. Place the spindle into the core of a fresh paper roll.
5. Place the paper roll and spindle in the open cover.
6. If loading paper for the first time after installation, or if changing to a different paper width, use the green wheel at the left side of the print mechanism to adjust the paper guides so their positions correspond to the width of the paper.
7. From the rear, insert the paper below the rounded rear wall of the print mechanism and between the paper guides until it protrudes in front of the tear-off edge.
8. Move the paper roll and spindle to the paper stock compartment and let the spindle rest in the slots on either side.
9. Check that the paper guides allow the paper to run smoothly without causing it to bulge, yet keep it firmly centre-aligned. If necessary, use the green wheel on the left side to fine-adjust.
10. If required, load a fresh supply of thermal transfer ribbon according to the instructions in the chapter *"Ribbon Load"*.
11. Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
12. Close the printer's top cover.
13. Tap the **Feed** key 4 times or until the indicator lamp glows green.
14. If the printer did run out of paper while printing, the printing will automatically be resumed. Else, tear off excessive paper by pulling it down against the tear-off edge.

HINT:
If you use the same paper width, you could reload the paper supply by just opening the transparent cover and insert the paper, while pressing the Feed key.

PAPER LOAD, cont'd.

Peel-Off Operation, Labels



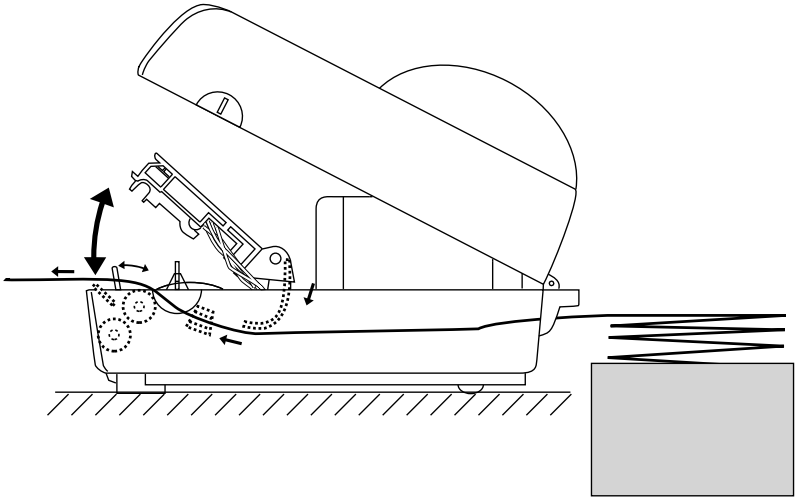


Loading Instructions:

1. Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
2. Pull the green carriage release lever, at the left side of the print mechanism, forward as far as it goes and check that it stays there. Lift the print carriage to open position.
3. Remove possible remaining paper or empty paper core.
4. Place the spindle into the core of a fresh paper roll.
5. Place the paper roll and spindle in the open cover.
6. If loading paper for the first time after installation, or if changing to a different paper width, use the green wheel at the left side of the print mechanism to adjust the paper guides so their positions correspond to the width of the paper.
7. From the rear, insert the paper below the rounded rear wall of the print mechanism and between the paper guides until it protrudes in front of the tear-off edge.
8. Move the paper roll and spindle to the paper stock compartment and let the spindle rest in the slots on either side.
9. Check that the paper guides allow the paper to run smoothly without causing it to bulge, yet keep it firmly centre-aligned. If necessary, use the green wheel on the left side to fine-adjust.
10. If required, load a fresh supply of thermal transfer ribbon according to the instructions in the chapter *"Ribbon Load"*.
11. Pull out at least 15 cm (6") of label web and remove the labels from the backing paper.
12. Thread the backing paper around the tear-off edge and insert it between the black rubber roller and the white plastic roller. Push until it comes out through the slot at the bottom of the printer's front.
13. Hold the label web while pulling at the backing paper, so it becomes tight. Then push the carriage release lever rearwards as to press the rollers together.
14. Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
15. Close the printer's top cover.
16. Tap the **Feed** key 4 times or until the indicator lamp glows green.
17. If the printer did run out of labels while printing, the printing will automatically be resumed.

PAPER LOAD, cont'd.

External Supply



EasyCoder 91 direct thermal model loaded with fan-folded tags.

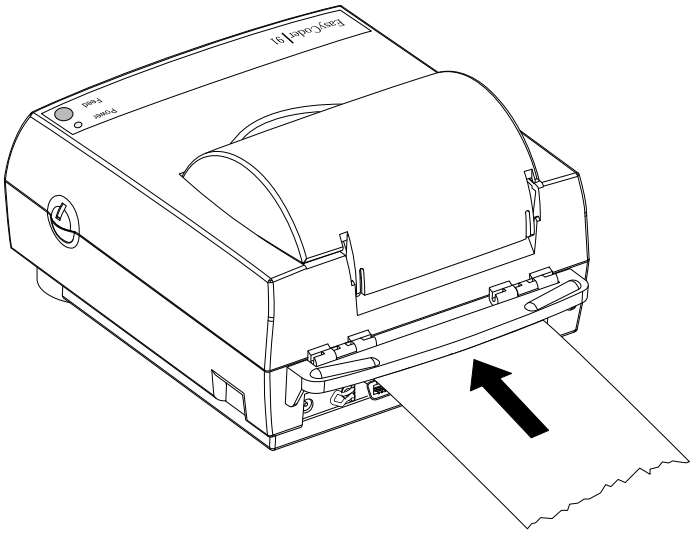
Note:
Because of the printer's low weight, it may have difficulties in handling the start and stop momentum of a large paper roll.

Loading Instructions:

Regardless of model and type of operation, direct thermal paper or receiving face material (in the form of tags, or labels) can be provided from an external supply, e.g. a stack of fan-folded tags.

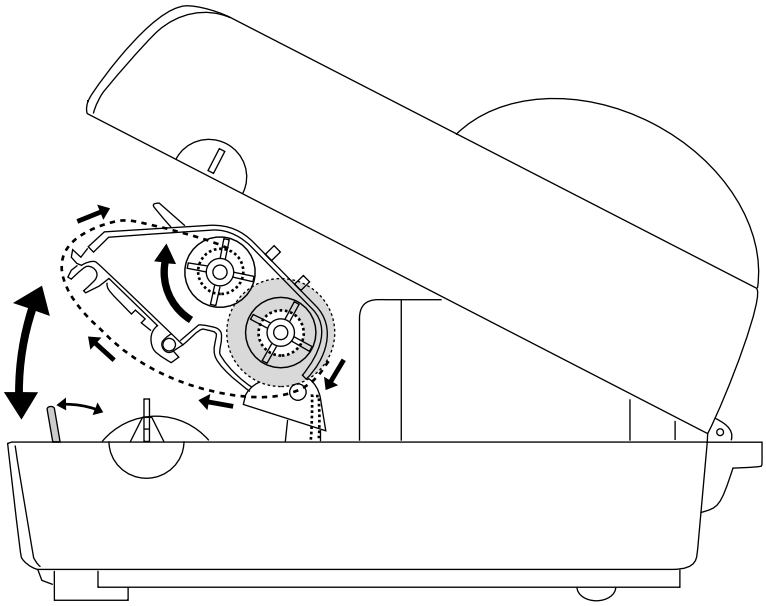
Follow the loading instructions for the type of operation in question, but ignore all paragraphs concerning the internal spindle. Instead, insert the paper through the slot below the hinges for the upper cover (see illustrations).

Be careful to protect any external paper supply from dirt, grit, dust, water and direct sunlight.



RIBBON LOAD

Loading a Fresh Ribbon Roll



Thermal transfer ribbons are only required when printing on non heat-sensitive receiving face materials. The type of transfer ribbon should match the face materials, as to obtain the best durability and printout quality.

Loading Instructions:

1. Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
2. Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
3. Remove front core with the used-up ribbon and the empty core at the rear. Keep the empty core!
4. Unpack a fresh roll of transfer ribbon and guide the ribbon leader down in front of the wall, that separates the print carriage from the paper compartment, so the ribbon will feed from the top of the roll with the ink-covered side facing rearwards.
5. Install the ribbon roll onto the rear spindle by placing one end over the left spindle and pushing to the left. Then align the right end with the right spindle and engage.
6. Similarly, install an empty core onto the front (take-up) ribbon spool.
7. Guide the end of the transfer ribbon forward under the print carriage and up in front of it. Using the tape fitted at the end of the ribbon leader, affix the leader to the top of the take-up core. Be careful to centre-align the leader with the core.
8. Turn the front wheel on the right side clockwise to wind up the leader onto the take-up core until the black ink-coated ribbon becomes visible. Remove any excess slack.
9. If so required, also load a fresh supply of receiving face material, e.g. paper, according to the instructions earlier in this chapter.
10. Close the print carriage by pressing it firmly down simultaneously on both sides. A load click indicates locked position.
11. Close the printer's top cover.
12. Tap the **Feed** key until the indicator lamp glows green.

Note: One roll of thermal transfer ribbon roughly corresponds to two rolls of tags or labels.

RIBBON LOAD, cont'd.

Removing Partially Used Ribbon

When switching between direct thermal and thermal transfer printing, or when switching between different types of transfer ribbon, a partially used transfer ribbon can be removed and saved for later use:

1. Open the printer's top cover by pressing the two cover locks on either side and folding the cover upwards/rearwards.
2. Pull the green carriage release lever, at the left side of the print mechanism, forward and lift the print carriage to open position.
3. Using a pair of scissors, cut the transfer ribbon just below the take-up roll.
4. Rewind the unused ribbon onto the supply roll. Remove the roll by pushing to the left until the right end disengages and then lifting the roll up. Fasten the loose end with a piece of tape or label, to prevent the roll from unwrapping.
5. Remove the take-up roll by pushing to the left and lifting up. **Keep the core!** You will need it later to use as a take-up roll. Remove the used ribbon by unwinding it into a waste basket.

LABEL STOP SENSOR ADJUSTMENT

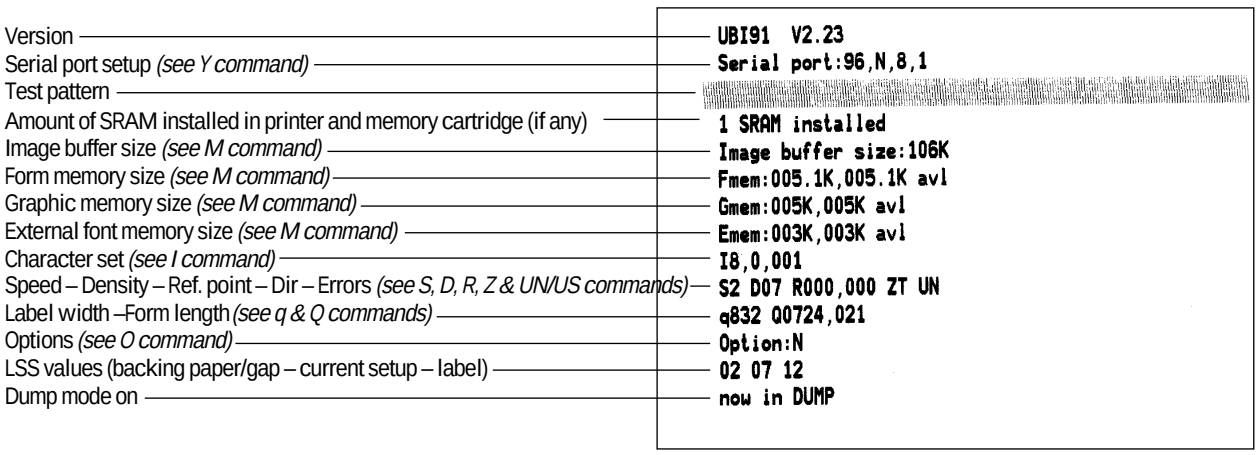
The *EasyCoder 91* printer is fitted with a label stop sensor (LSS) that detects slots between tickets and tags, or gaps between labels, as the paper is fed past the sensor during printing. Thus the software can determine the length of the tags or labels and control the paper feed motor accordingly.

The LSS is a photoelectric sensor that measures the light that passes through the paper web. The transparency of the backing paper (liner) of label supply may differ between batches, making it difficult for the LSS to discriminate between labels and backing paper. When this occurs, the indicator lamp will switch from green to orange, indicating that LSS should be adjusted by entering the Test Mode, as described on page 32.

TEST MODE

The Test Mode is used for three main purposes:
- To adjust the Label Stop Sensor (LSS), see page 31.
- To enter the Dump Mode, see page 42.
- To print a Test Label with a test pattern and a list of the printer's current setup, see below

Enter the Test Mode this way:
1. After having loaded the printer with full width labels, switch off the power to the printer.
2. Press and hold down the **Feed** key while switching on the power.
3. Release the **Feed** key when the printer starts feeding labels.
4. The indicator lamp will turn off and then switch to green while the adjustment is performed. The printer will feed out 3–4 labels before the adjustment is completed. In case of peel-off operation, remove the labels as they are fed out.
5. When the adjustment is finished, a Test Label will be printed and the printer will be placed in the Dump Mode (also see page 42).
6. Tap the **Feed** key once to switch back to normal operation.



The Test Label contains useful information on the printer's current setup.
Note:
If a real-time clock circuit is fitted in an inserted optional memory cartridge, the present time and date according to the clock circuit will also be printed on the Test Label.

CLEANING

The UBI EasyCoder 91 printers are manufactured and tested under a strict quality management program. Only high quality components and materials are used in the printers. Although only minimal maintenance is required, following these simple maintenance procedures will ensure longer life with quality printing performance.

External Cleaning

Keep your *EasyCoder 91* clean by periodically wiping it with a soft cloth dampened with water. Do not use abrasive cleaners or solvents as they will scratch the surface.

Cleaning the Printhead

We recommend using the special *Cleaning Card* (part number 1-110071-00) and the procedures below to clean the printhead before loading each new roll of labels or tags.

1. Turn off the power to the printer.
2. Unload the label or tag stock.
3. In case of thermal transfer printing, also remove the transfer ribbon.
4. Open the pouch and pull out the cleaning card. Be careful not to tear the card inside!
5. Insert the cleaning card into the print mechanism the same way as when loading the paper. Allow approximately 2–3 cm (1") of the cleaning card to extend in front of the printhead.
6. Lower the thermal printhead to operating position.
7. Use one hand to hold the printer and the other hand to pull the cleaning card forward, until the entire card has been pulled free.
8. Repeat steps 5 – 7 a second time.
9. Dispose properly of the used cleaning card and reload the paper and ribbon stocks.

WARNING!
Highly Flammable

TROUBLESHOOTING

Problem	Solution or Reason
Power *indicator does not light green when power is switched on.*	• Make sure connectors on power supply are securely plugged into the socket on the printer's rear panel, and to an AC outlet.
Power *indicator lights green but printer will not feed.*	• Label taken sensor active, label not removed from outfeed slot. • Make sure correct type of interface cable is securely plugged into both printer and computer.
Printer appears to be working but nothing is printed.	• *Direct Thermal Printing:* Verify that the paper is intended for direct thermal printing by testing if the paper is blackened by the heat from a hot object (+ 70° C/160° F or more). Check that the heat-sensitive side faces the printhead. • *Thermal Transfer Printing:* Verify that the printer is loaded with thermal transfer ribbon and that the ink-coated sided faces the paper.
Printing is faded.	• Clean the printhead with the cleaning card, see page 33. • If printing is still faded, increase the print energy with appropriate setup as described on pages 18 and 73.
Prints only partial label.	• Printhead mechanism not completely locked. Press on both sides. • Label caught on printhead. Remove and clean.
Printer keeps printing or feeding when it should not.	• Label caught on label stop sensor inside print mechanism. Remove and clean. • Possible software problem.
Printing stops and indicator lamp lights orange.	• Possible problem with label stop sensor. Perform autoadjust as described on page 32. • Possible paper jam. • Possible software problem.
Memory lost.	• Replace batteries on CPU board and in memory cartridge (if any) as described on pages 35-36.
Label stuck on roller.	• Grab the flat tab at the left side of the front hatch and push it carefully to the right so as to disengage the snap-lock. Then pull front hatch straight up. Remove tear-off edge. Use fingers to peel off stuck label. Do not use any sharp tools! Clean using a cleaning card or a cotton swab moistened with isopropyl alcohol.
Worn out or defective printhead	• Replace printhead by disconnecting the power supply unit, unloading ribbon, and removing the single screw at the centre of the printhead bracket. Carefully manipulate the printhead out of the bracket and disconnect cable. Reassemble in reverse order.

BATTERY REPLACEMENT

CPU Board Battery

The printer's built-in RAM memory is battery backed-up by means of a 3V coin-type lithium battery (CR2032) fitted on the CPU board. If you store valuable data in the printer's memory, we recommend replacing the battery at least once a year, to be on the safe side. Proceed as follows:

1. Turn off the printer.
2. Open the top cover and remove the paper roll.
3. Remove the four Phillips screws that hold the plastic moulding to the rear of the print mechanism.
4. Carefully manipulate the moulding out from under the print mechanism so the CPU board becomes visible.
5. Quickly replace the battery. The RAM package will keep its contents for 5 minutes without any current from the battery.
6. Reassemble in reverse order and turn on the printer.

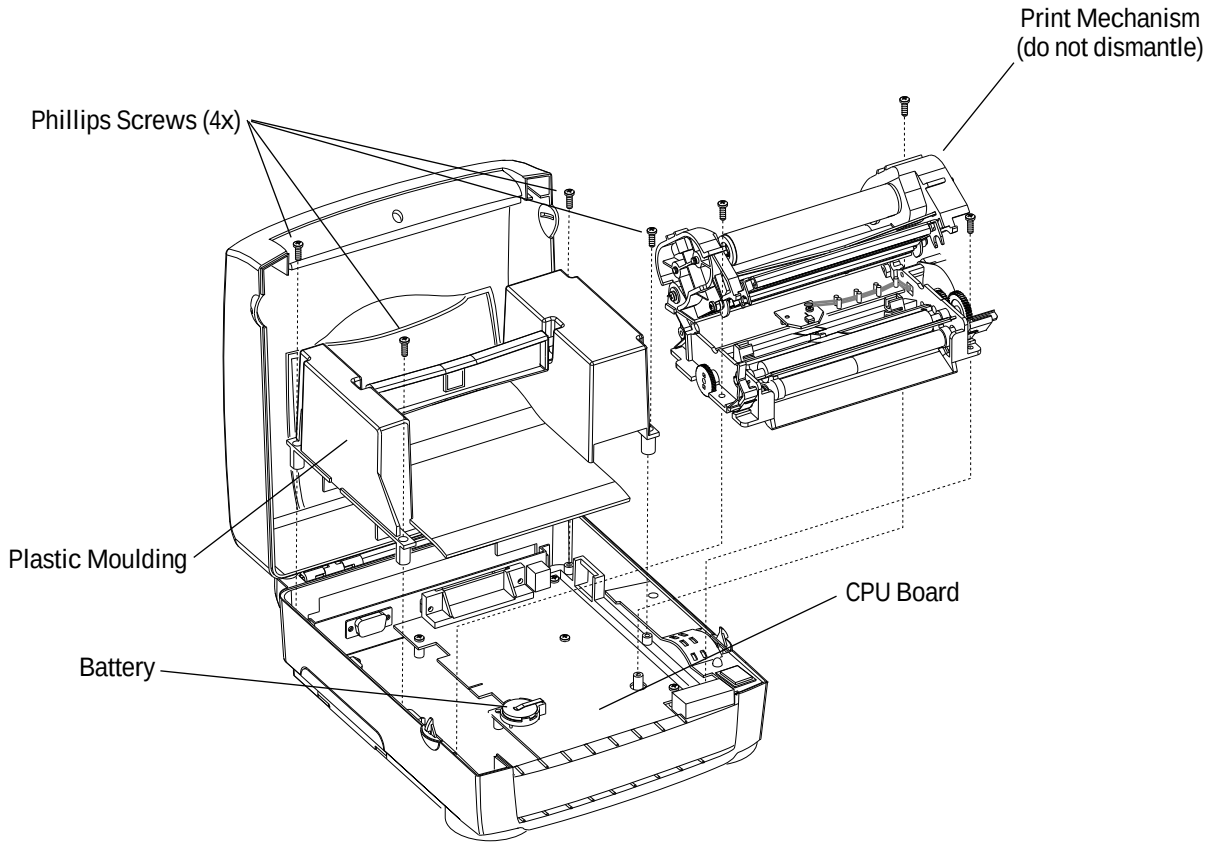


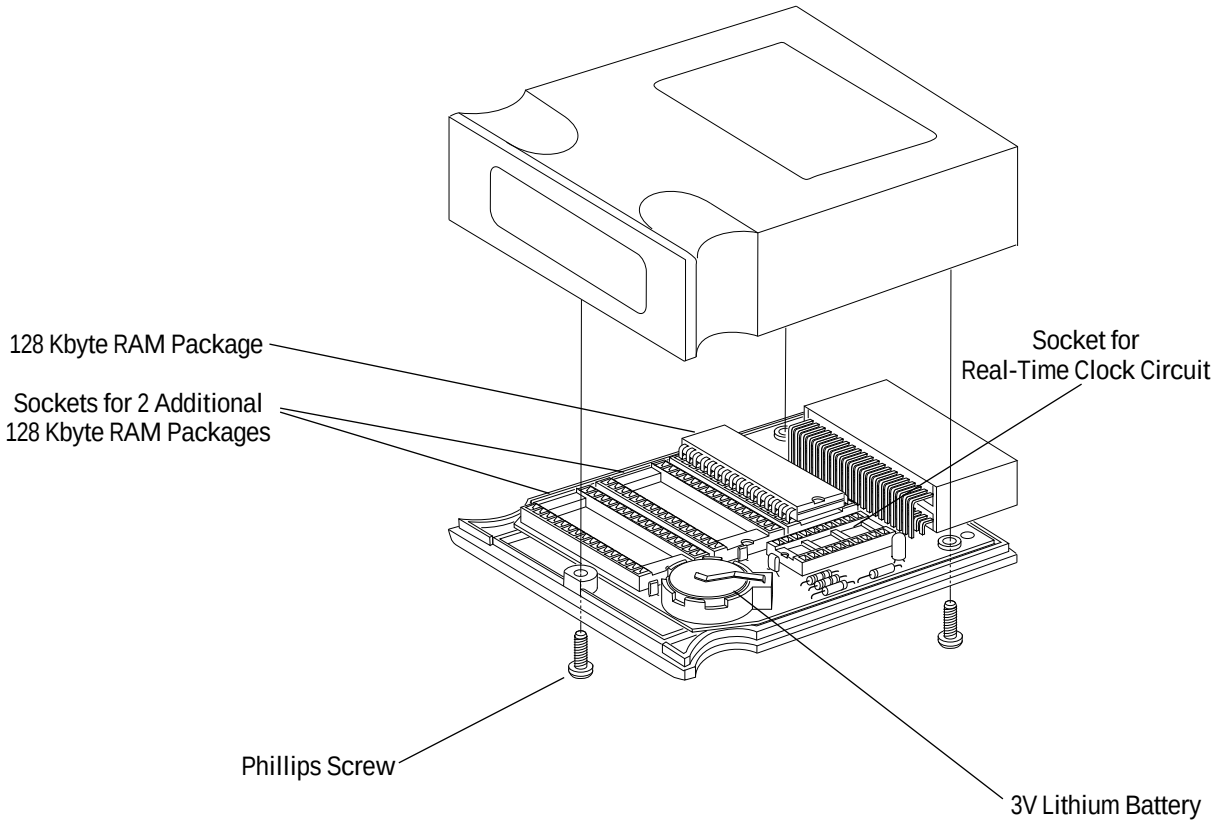
Illustration showing the location of the internal battery on the CPU board. The print mechanism has only been removed to provide a better view.

BATTERY REPLACEMENT, cont'd.

Cartridge Battery

The RAM memory and the Real-Time Clock Circuit in the optional memory cartridge are battery backed-up by means of a 3V coin-type lithium battery (CR2032) fitted inside the cartridge. If you store valuable data in the memory cartridge, we recommend replacing the battery at least once a year, to be on the safe side. Proceed as follows:

1. Turn off the printer.
2. Pull the cartridge straight out.
3. Turn the cartridge upside down and remove the three Phillips screws that hold the cartridge together. Then turn the cartridge back to label up position.
4. Separate the two parts of the cartridge cover by lifting away the top part (i.e. the one with the label on). Take precautions as to protect the circuit board from electrostatic shock.
5. Quickly replace the battery. The RAM packages will keep their contents for 5 minutes without any current from the battery.
6. Reassemble in reverse order and turn on the printer.



DIRECT THERMAL PAPER

Stock Labels

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*.

UBI offer **stock** labels for direct thermal printing in the following sizes and qualities. Other sizes and qualities can be offered on special request. *UBI* reserve the right to change the list below without any prior notice.

Quality	Size (width × length)	Application	Part. No.
Economy	104 x 55 mm (4.10 x 2.17")	Large address	1-121071-00
Premium	104 x 55 mm (4.10 x 2.17")	Large address	1-122072-00
Premium	104 x 104 mm (4.10 x 4.10")	General	1-122073-00

TRANSFER RIBBONS AND FACE MATERIALS

Thermal Transfer Ribbons

UBI offer three types of thermal transfer ribbon:

- ***General Purpose*** (GP) is a wax-based ribbon suited for course non-coated paper like vellum or bond paper.
- ***High Performance (HP)*** is a two-layer wax and resin (hybrid) ribbon optimized for matt coated and glossy papers. Recommended for ladder-style bar codes.
- ***High Resistance*** (HR) is a resin-based ribbon, which has a good resistance against mechanical wear, high temperatures and chemicals. It is intended for demanding applications and the use of synthetic receiving face materials.

Quality	Name	Width	Face Material	Part. No. EU	Part. No. USA
Wax	GP 91	110 mm (4.33")	Vellum	1-091645-01	
Wax	GP 91	90 mm (3.54")	Vellum	1-091645-10	
Wax	GP 91	60 mm (2.36")	Vellum	1-091645-20	
Wax	GP 92	110 mm (4.33")	Bond		1-091645-02
Wax	GP 92	90 mm (3.54")	Bond		1-091645-11
Wax	GP 92	60 mm (2.36")	Bond		1-091645-21
Hybrid	HP 91	110 mm (4.33")	Matte coated	1-091646-01	
Hybrid	HP 91	90 mm (3.54")	Matte coated	1-091646-10	
Hybrid	HP 91	60 mm (2.36")	Matte coated	1-091646-20	
Hybrid	HP 92	110 mm (4.33")	Matte coated		1-091646-02
Hybrid	HP 92	90 mm (3.54")	Matte coated		1-091646-11
Hybrid	HP 92	60 mm (2.36")	Matte coated		1-091646-21
Resin	HR 91	110 mm (4.33")	Synthetic	1-091647-01	1-091647-02

Stock Labels

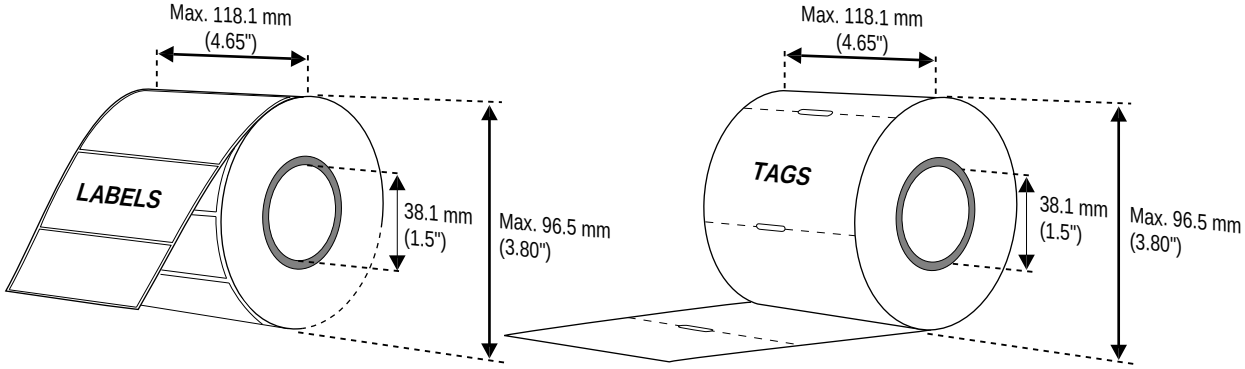
UBI offer **stock** labels for thermal transfer printing in the following sizes and qualities. Other sizes and qualities can be offered on special request. *UBI* reserve the right to change the list below without any prior notice.

Quality	Size (width × length)	Application	Part. No.
Matte coated	70 x 49 mm (2.76 x 1.93")	Diskette	1-124091-00
Matte coated	90 x 28 mm (3.54 x 1.10")	Shelf/Address	1-124092-00
Vellum	104 x 74 mm (4.10 x 2.91")	Pallet[1]	1-123094-00
Matte coated	102 x 102 mm (4.02 x 4.02")	General	1-124093-00
Vellum	104 x 150 mm (4.10 x 5.91")	Pallet[2]	1-123095-00

[1]/. UCC128, EAN 128, MITL
[2]/. UCC128, EAN 128, MITL, Odette

PAPER DIMENSIONS

Paper Roll



Core:		
Diameter ..... :	38.1 mm	(1.5")
Max. width ..... :	118.1 mm	(4.65")
Roll:		
Max. diameter ..... :	96.5 mm	(3.80")
Max. media width ..... :	118.1 mm	(4.65")
Min. media width ..... :	28.6 mm	(1.12")
Max. media thickness[1] ..... :	0.25 mm	(0.010")
Min. media thickness ..... :	0.06 mm	(0.003")
Typical media length[2] ..... :	≈ 41 m	(1,600")

[1]/. This 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.

[2]/. Max. roll size and 0.15 mm/.006" media thickness.

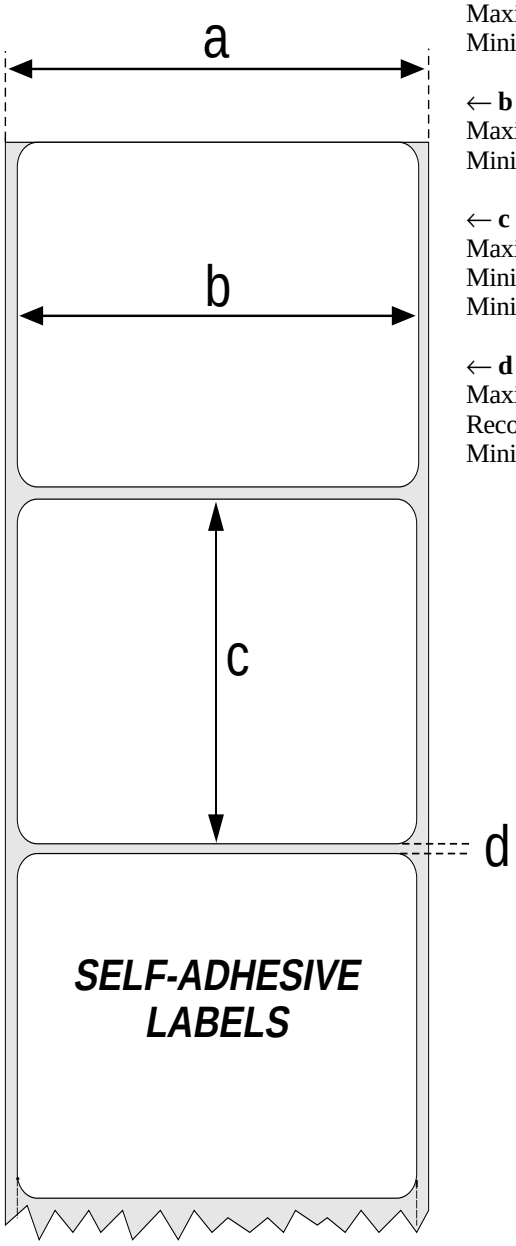
Labels should be wound with the labels facing *outwards* and unroll from the *top* of the roll.

Tags and **Paper Strip** should be wound with the side intended for printing facing *inwards* and unroll from the *bottom* of the roll.

Important! Protect the paper stock against sand, grit, and other hard particles during printing and storage. Keep the transparent cover closed. Even very small but hard foreign particles may cause severe harm to the delicate printhead.

PAPER DIMENSIONS, cont'd.

Self-adhesive Labels



← **a** → **Web width** (incl. backing paper):

Maximum ..... :	118.1 mm	(4.65")
Minimum ..... :	28.6 mm	(1.12")

← **b** → **Label width** (excl. backing paper):

Maximum ..... :	114.1 mm	(4.49")
Minimum ..... :	24.6 mm	(.97")

← **c** → **Label length:**

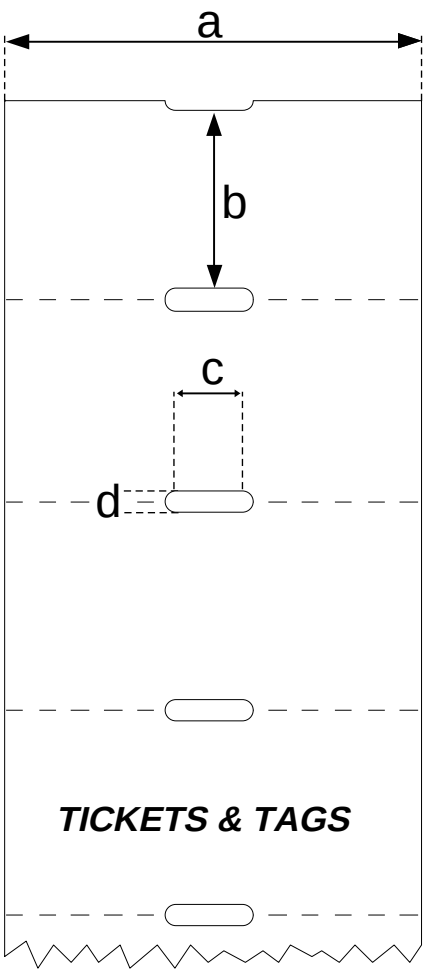
Maximum (384 kbyte memory cartridge) .. :	616 mm	(24.25")
Minimum (w/o LTS) ..... :	9.7 mm	(.38")
Minimum (w. LTS) ..... :	12.7 mm	(.50")

← **d** → **Label gap height:**

Maximum ..... :	13 mm	(.51")
Recommended ..... :	3 mm	(.125")
Minimum ..... :	2 mm	(.08")

PAPER DIMENSIONS, cont'd.

Tags



← a → Tag width:

Maximum ..... :	118.1 mm	(4.65")
Minimum ..... :	28.6 mm	(1.12")

← b → Tag length:

Maximum (384 kbyte memory cartridge) .. :	616 mm	(24.25")
Minimum (w/o LTS) ..... :	9.7 mm	(.38")
Minimum (w. LTS) ..... :	12.7 mm	(.50")

← c → Detection slot length:

Minimum ..... :	6 mm	(.24")

← d → Detection slot height:

Maximum ..... :	13 mm	(.51")
Recommended ..... :	3 mm	(.125")
Minimum ..... :	2 mm	(.08")

The detection slot should be centred on the web.

INTRODUCTION

General Information

The *EasyCoder 91* is provided with a built-in control program by which you can use any computer or terminal, that can produce ASCII characters, to control the printer. This is a useful alternative to the *Windows Driver*, which requires a PC operating under *Microsoft Windows*.

With this control program, you can use any editor[1] to program the *EasyCoder 91*, either by means of the serial RS 232C channel or the parallel Centronics channel.

The remaining part of the manual will assist you in designing labels using the *EasyCoder 91* programming software. It has been organized to provide you with an understanding of the printer's functions and command structure.

If you have any questions regarding the product or this manual, please contact your distributor for technical assistance.

Dump Mode

The printer has the capability to perform in dump mode, which means that the printer will print out the echo of the received ASCII. Use this capability to debug your software when the printer does not perform as you expect.

To enter Dump Mode:

- Turn off the power to the printer.
- For best result, load the printer with full width labels or tags.
- Hold down the Feed key and turn on the power again.
- Hold the Feed key until the printer starts to feed. Then immediately release the Feed key. This procedure also adjusts the label stop sensor, see page 31, and produces a test label, see page 32.

You can also enter the Dump Mode, when an error occurs and the control lamp shines orange, by pressing the Feed key and keep it depressed a few seconds (as opposed to tapping the key, which just resets the printer).

In the Dump Mode, the output is the same label as produced by means of a **U** command, but an extra line will be appended saying *"now in DUMP"*. Then the printer waits for ASCII dump printing.

Send a string of characters or a label form to the printer and tap the Feed key to produce a printout. Dump mode will also print control characters, see character set table on page 138.

To return to normal mode, press the Feed key. A label with the message *"out of DUMP"* will be printed.

1/. Hint!
In Microsoft Windows 3.1, you can use Write or Notepad to compose strings, which you copy and paste into Terminal, from which you can transmit them via the serial communication channel to your EasyCoder 91.

Continued!

INTRODUCTION, cont'd.

General Programming Information

Memory

The *EasyCoder 91* firmware has memory allocation for print image buffer, form, graphic, and external font (soft font) memory. The first time the printer is used, it is automatically initialized to default settings, see page 49.

The **M** memory command sets the image buffer, the form memory, and graphic memory area. The remaining memory space, if any, is allocated to the external font memory, which is presently not used in *UBI EasyCoder 91*.

Direct Mode

You can print a label without using a predefined format by sending write commands (text, bar codes, graphics, lines and boxes) to the printer after having cleared the image buffer using an **N** command. The label remains stored in the image buffer and can be printed over and over again by sending new **P** print commands, until the buffer is cleared by an **N** command, or by retrieving and printing a Form (see **FR** command).

The Direct Mode is also used for retrieving and printing preprogrammed label formats, for the issuing of global setup commands, for deleting forms and graphics from memory, and to make the printer produce a number of different reports.

Form Edit Mode

This mode is used to permanently store label forms, and graphics in the printer memory. In addition to plain text, bar codes, graphics, lines and boxes, form edit mode also allows the use of variables and counters, which are not available in the Direct Mode. The individual label forms can be retrieved and printed in the Direct Mode.

Some setup parameters can be included in forms in order to adapt the printer for different applications. However, such setup parameters will affect the global setup after the form has been retrieved and printed.

The optional Keyboard Display Unit (KDU) can retrieve a stored form , making it possible to use the *EasyCoder 91* as a stand alone system, i.e. without connection to a computer.

Form

Every label is made up of various fields. A form is the complete set of commands that define the content and the design of the label. A form can be saved in memory and retrieved when required.

Continued!

INTRODUCTION, cont'd.

General Programming Information, cont'd.

Text Editor

Use any ASCII output device with a parallel or serial port and a text editor to design the form and programming the *EasyCoder 91* printer. Communication is based on the ASCII characters 10 dec., and 32-255 dec.

Commands

The command syntax is based on upper and lower case characters, numeric characters, commas (as separators), quotation marks and line feeds (LF; ASCII 10 dec.). The LF in this manual is listed as ↵ in the command descriptions.

Note that all programming examples start with LF (depicted as ↵). It is strongly recommended to start any sequence of command lines with a Line Feed (LF).

LINE FEED (LF) IS REQUIRED TO BE SENT AT THE END OF MOST COMMAND LINES.

Most PC based systems send CR/LF when pressing the Enter key. The CR (carriage return) sent in a CR/LF sequence will be ignored. CR alone will not work.

Refer to page 47 for a list showing for which purposes the various command can be used.

Syntax Descriptions

Later in this section, you will find each command listed on a separate page with a description of its syntax. In the syntax, there are a few conventions for substituting data or indicating how data can be used:

- **$p_1 - p_n$**
  Indicates parameters listed separately below the syntax description.
- **[.....]**
  Square brackets indicate optional parameters or data.
- **|**
  A straight vertical lines indicates alternatives.
- **"Name"**
  Enter the name of the form or graphic within double quotation marks (ASCII 34 dec.), i.e. "UBI".

Continued!

INTRODUCTION, cont'd.

General Programming Information, cont'd.

- **"Data"**
  The data could be from another source such as a .PCX file, a database, or entered by the operator. "Data" designates the place in the command sequence to input the data.

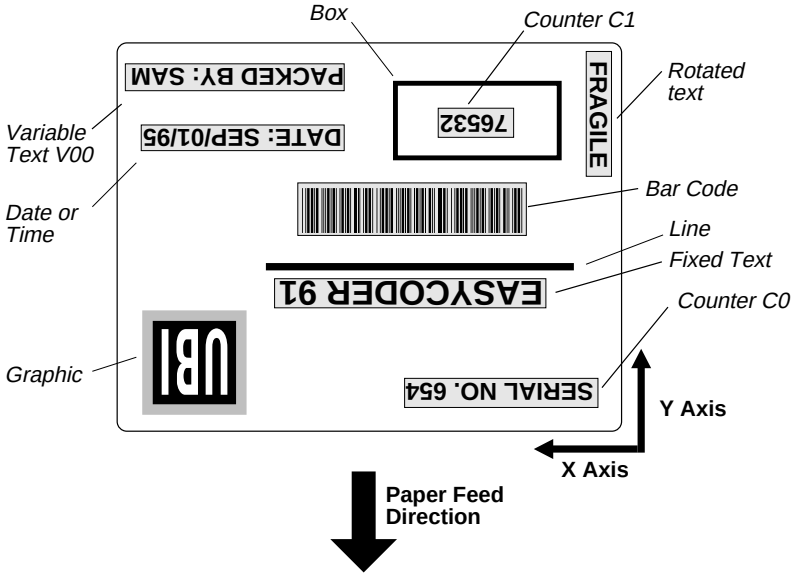
  Because the software program uses "" (ASCII 34 dec.), you need a special designator if you need to print text or bar code which includes these quotation marks[1]. The backslash character "\" (ASCII 92 dec.) serves that purpose:

To print:	"	*enter:*	" \" "
To print:	"UBI"	*enter:*	" \"UBI\" "
To print:	\	*enter:*	" \\ "
To print:	\code\	*enter:*	" \\code\\ "

  [1]/. If a 7 bit character set is selected, this syntax will not be supported. All backslash (\ ) characters will be printed as entered.

Field

Each command line of printable data will create a field, which is defined in regard of start position, rotation, magnification etc.



The illustration shows how a label is printed and fed out when using the default direction.

Continued!

INTRODUCTION, cont'd.

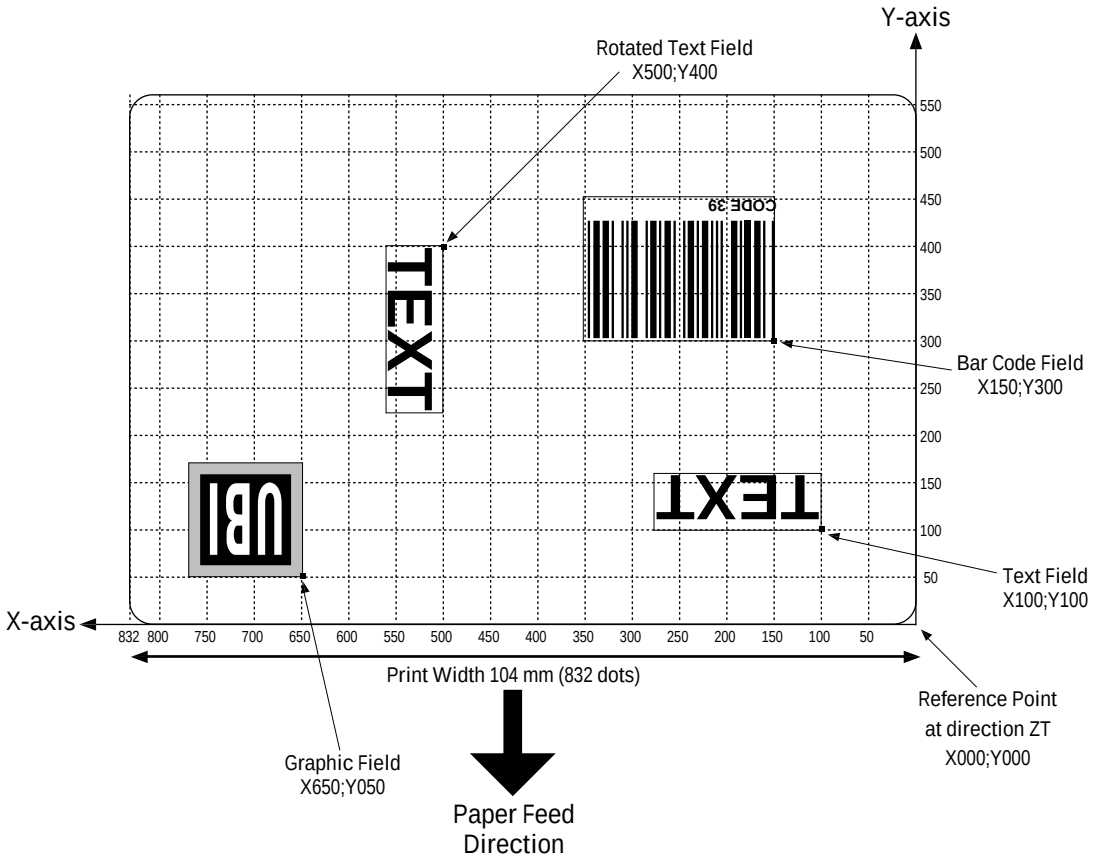
General Programming Information, cont'd.

Field Positioning

The printable area of the label forms a grid, where the X-axis runs across the label and the Y-axis runs along the label web. Dots are used as the unit for establishing position of the upper left corner of each field in relation to a specified reference point, in this example the top left corner of the form.

For example, as the printhead density is eight dots per millimetre (203 dots per inch), a field that starts 5 mm (0.197 in.) inside of the left margin and 3 mm (0.118 in.) down should be expressed as 40 dots on the X axis and 24 dots on the Y axis.

Text and bar code fields can be rotated around their insertion points, whereas lines, boxes and graphics cannot be rotated. However, the entire print image can be rotated 180°. The illustration below shows coordinates for the default print direction (ZT).



Continued!

COMMANDS

The following list illustrates which commands can be used in the Direct Mode and the Form Edit Mode and for what purposes.

Direct Mode Commands

- Setup Commands
  Used to set up the printer globally, i.e. affects both the Direct Mode and Forms.

- Store Command
  Used to store graphic files in printer's memory.

- Clear and Delete Commands
  Used to erase data from the printer's memory.

- Editing Commands
  Used to edit labels in the Direct Mode.

Continued!

COMMANDS, cont'd.

Direct Mode Commands, cont'd.

- Print Commands

Used to produce printouts of labels edited in the Direct or retrieved form edited in the Form Edit Mode.

- Report Commands

Return information on serial channel and/or produce printed information.

Form Edit Mode Commands

- Setup Commands in Forms

Will affect the global setup after printing a form including such a command.

- Editing Commands

Used to edit forms.

SETTING UP THE PRINTER

Default Setup

At delivery, the *EasyCoder 91* is set up as follows.

Parameter	Command	Default Value and Remarks
Density	D	7
Character Set	I	8 bits, code page 0, country code 001
Top of Form backup	JB/JF	Enabled
Paper feed adj.	j	140 dots (tear-off)
Image buffer	M	106 Kbytes
Form memory	M	5.1 Kbytes
Graphic Memory	M	5 Kbytes
Ext. Font Memory	M	3 Kbytes (at 128 Kbyte RAM)
Label Stop Sensor	O	Normal
Label Taken Sensor	O	Enabled (if fitted)
DT/TT Printing	O	TT (end of ribbon sensor enabled)
Form Length	Q	Auto-detection
Label Width	q	832 dots (full width)
Reference Point	R	X:024;Y000
Print Speed	S	50 mm/sec (2"/sec.)
Error Handling	UN/US	Enabled
Windows Mode	W	Disabled
Serial Port	Y	9600 baud, no parity, 8 data bits, 1 stop bit
Print Direction	Z	ZT (Start at top of label)

The setup will be reset to default values if:
- The memory backup battery is disconnected or discharged.
- An optional memory cartridge has been removed.
- The printer's memory is reformatted using an **M** command.

Some commands may also affect the values of other command, e.g. if a configuration label is printed (see **U** and **UP** commands), the print direction is reset to **ZT**, and if an **R** Reference Point command is executed, the label width (see **q** command) will be reset to default.

Example

Let us assume that we will use an *EasyCoder 91* thermal transfer printer (peel-off model) without any memory cartridge. We will print full vellum labels with GP91 transfer ribbon in the peel-off mode without using the label-taken sensor. The default communication setup and character set are acceptable.

Thus, a few setup parameters should be changed in the Direct Mode:
- Density from 7 to 4
- Paper feed adjustment from 140 to 110
- Label Taken Sensor from enabled to disabled

Enter the following commands:

Command	Explanation
↵	CR/LF to start command structure
D4 ↵	Set density
j140 ↵	Set paper feed adjustment
ON ↵	Disable label taken sensor

EDITING AND PRINTING IN THE DIRECT MODE

Example

Assuming that...
- The printer has been set up for the application (see page 49)
- The length of the label and the gap has been determined by printing a Test Label (see page 32)
- The graphic used in the example has been downloaded to the printer as described on page 82 (GM command)[1].

...we will now print two copies of a label which we will edit in the Direct Mode.

This means that the label can be printed as many times as you want, as long as it still is stored in the image buffer. Once replaced, it cannot be retrieved. It also means that counters and variables cannot be used.

Command	Explanation
↵	CR/LF to start command structure
N↵	Clear image memory
X0,0,4,752,584↵	Draw a box
LO0,144,752,4↵	Draw a line
LO440,232,4,160↵	Draw a line
A456,48,0,5,1,1,N, "UBI"↵	Write a text line of fixed data
A40,400,1,1,1,1,N,"Made in Sweden"↵	Write a 90° text line of fixed data
A24,160,0,5,1,1,R,"EASYCODER"↵	Write a text line of fixed data
A24,250,0,4,1,1,N,"MODEL: 501SA"↵	Write a text line of fixed data
A472,312,0,4,1,1,N,"Checked by: Dan"↵	Write a text line of fixed data
A24,312,0,4,1,1,N,"SERIAL#: 000001"↵	Write a text line of fixed data
B280,440,0,1,2,3,96,B,"S 000001"↵	Write barcode representing fixed data
GG24,12,"UBI"↵	Write a graphic from graphics memory
P2↵	Print command to image buffer

*[1]/. The UBI logotype is not included in the software package and is only included in the example to demonstrate how to print a graphics field. You can substitute it with any graphics of approximately the same size. If you find it difficult to download graphics, you could omit the **GG** command from the example until you have become more familiar with the concept.*

The label will look like the example on page 51.

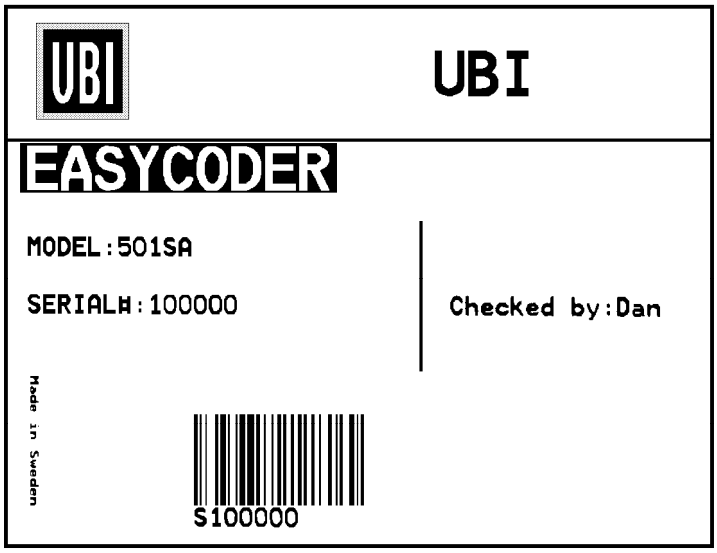
EDITING IN THE FORM EDIT MODE

Example

Assuming that...
- The printer has been set up for the application (see page 49)
- The length of the label and the gap has been determined by printing a Test Label (see page 32)
- The graphic used in the example has been downloaded to the printer as described on page 82 (GM command)[1].

...we will now edit a label that can be saved as a form in the printer's memory and retrieved when so required. It also means that we can use counters and variables.

When we are finished, the label will look like this:



Name the Form

Name of this form is TEST.

Command	Explanation
↵	CR/LF to start command structure
FK"TEST" ↵	Delete any existing form named TEST
FS"TEST" ↵	Start store form named TEST

*[1]/. The UBI logotype is not included in the software package and is only included in the example to demonstrate how to print a graphics field. You can substitute it with any graphics of approximately the same size. If you find it difficult to download graphics, you could omit the **GG** command from the example until you have become more familiar with the concept.*

Continued!

EDITING IN THE FORM EDIT MODE, cont'd.

Example, cont'd.

Define Variables

The first variable (V00) has a maximum of 15 characters.
The second variable (V01) has 10 characters and prints in reverse.
The third variable (V02) has maximum 8 characters.

Command	Explanation
V00,15,N,"Enter Product name:"↵	Define first variable
V01,10,L,"Enter Model number:"↵	Define second variable
V02,8,N,"Checked by:"↵	Define third variable

The text within quotes are prompts, which will be sent from the printer to the host when the label form is retrieved (serial communication only).

Define a Counter

The counter has maximum 6 digits.

Command	Explanation
C0,6,L,+1,"Enter Serial Number:"↵	Define counter

Note:
*The variables (**V**00, **V01, V**02) and counter (**C**0), are defined within this label form named TEST. The next label form containing variables and counters, will again start with **V**00 and **C**0.*

If variable data is being sent from an external data base, omit the text between the quotes and replace with a space character, e.g. **V**00,15,N," ".

Draw a Box and two Lines

Start to draw the surrounding box using the **X** command and then draw the two lines using the **LO** command.

Command	Explanation
X0,0,4,752,584↵	Draw a box
LO0,144,752,4↵	Draw a black line
LO440,232,4,160↵	Draw a black line

Continued!

EDITING IN THE FORM EDIT MODE, cont'd.

Example, cont'd.

Place a Text Line with Fixed Data

Enter a text line containing the fixed data "UBI", in text size 5 (the largest size). The quotation marks enclosing the fixed data will not be printed. Write a 90 degree text line with the text "Made in Sweden". The text size (1) is the smallest resident font in the printer.

Command	Explanation
A456,48,0,5,1,1,N,"UBI"↵	Write a text line, fixed data
A40,400,1,1,1,1,N,"Made in Sweden"↵	90 deg. text line, fixed data

Place a Variable Text

The next line is a text line, using text size 5 in reverse and prints the variable **V**00. The data printed in this field must be sent to the printer at the time of form retrieval.

Command	Explanation
A24,160,0,5,1,1,R,V00 ↵	Write a text line, 1:st variable

Place a Combination of Fixed Data and a Variable

The following two command lines consist of a combination of fixed data enclosed in quotation marks and variable data.

Command	Explanation
A24,250,0,4,1,1,N,"MODEL: "V01↵	Text line, fixed data + 2:nd variable
A472,312,0,4,1,1,N,"Checked by: "V02↵	Text line, fixed data + 3:rd variable

Place a Combination of Fixed Data and a Counter

The next command line is a text line containing fixed data and the counter (**C**0). The first time this label form is retrieved for printing, the start value for this counter must be sent to the printer. The printer will store the value of the counter for this form and automatically continue to print the next value the next time this form is retrieved. Reset or set to another value by sending a new start value.

Note:
The value of the counter will be kept in the memory even if another form is retrieved or the printer is switched off.

Command	Explanation
A24,312,0,4,1,1,N,"SERIAL#: "C0↵	Text line, fixed data + 1:st counter

Continued!

EDITING IN THE FORM EDIT MODE, cont'd.

Example, cont'd.

Place a Bar Code with Fixed Data and a Counter

Below Bar Code Command line is entering a Code 128 bar code, containing the fixed data "S" in combination with the actual counter value. It is also set for printing the human readable text below the bar code.

Note:
The narrow to wide ratio is not relevant for Code 128. The printer will use the value for the narrow bar to define the bar code. (Value 3 for wide bar definition is ignored).

Command	Explanation
B280,440,0,1,2,3,96,B,"S"C0↵	Bar code, fixed data + 1:st counter

Place Graphics

The next line writes a graphic named "UBI"[1] from graphics memory and positions it on the form.

Command	Explanation
GG24,12,"UBI"↵	Write graphic from graphics memory

End Programming of this Form

The closing command that flags the end of form, see the full program listing later in this chapter.

Command	Explanation
FE	Closing command to store form

On next page you will find a complete list of this example.

*[1]/. The graphic "UBI" is not available in your printer and has only been included in the example to illustrate the method of using graphics in a form. Substitute this graphic with your own logotype or some other graphic of approximately the same size, or omit the **GG** command line.*

Continued!

EDITING IN THE FORM EDIT MODE, cont'd.

Example, cont'd.

PROGRAM LISTING

Command	Explanation
↵	CR/LF to start command structure
FK"TEST"↵	Delete current form named TEST
FS"TEST"↵	Start store form named TEST
V00,15,N,"Enter Product name:"↵	Define 1:st variable
V01,10,L,"Enter Model number:"↵	Define 2:nd variable
V02,8,N,"Checked by:"↵	Define 3:rd variable
C0,6,L,+1,"Enter Serial Number:"↵	Define counter
X0,0,4,752,584↵	Draw a box
LO0,144,752,4↵	Draw a line
LO440,232,4,160↵	Draw a line
A456,48,0,5,1,1,N, "UBI"↵	Write a text line of fixed data
A40,400,1,1,1,1,N,"Made in Sweden"↵	Write a 90° text line of fixed data
A24,160,0,5,1,1,R,V00↵	Write 1:st variable text field
A24,250,0,4,1,1,N,"MODEL: "V01↵	Write text line, fixed data + 2:nd variable
A472,312,0,4,1,1,N,"Checked by: "V02↵	Write text, fixed data + 3:rd variable
A24,312,0,4,1,1,N,"SERIAL#: "C0↵	Write text line, fixed data + 1:st counter
B280,440,0,1,2,3,96,B,"S"C0↵	Write barcode, fixed data + 1:st counter
GG24,12,"UBI"↵	Write graphic from graphics memory
FE↵	Closing command to store form

Continued!

RETRIEVING AND PRINTING A FORM

Example

Retrieve and Print Form

The form “TEST”, edited in the previos chapter, can be retrieved and printed from any ASCII sending device using this sequence:

Command	Explanation
↵	CR/LF to start command structure
FR"TEST"↵	Retrieve form
?↵	Call for variables
EASYCODER↵	Substitute variable V00
501SA↵	Substitute variable V01
Dan↵	Substitute variable V02
100000↵	Counter start value C0
P1,2	Print 2 copies of a single label

In this example we have manually substituted variables for testing purposes.

Note: It is critical to the syntax to send exactly the same number of variable lines as defined for this label form.

Provided you use the serial interface for communication between printer and host[1], you can make the printer return prompts that appear on the screen, requesting the operator to enter input data, by sending a **UI** command after each power-up.

Printer Sends	Command	Explanation
	↵	CR/LF to start command structure
	UI	Enable prompts command (optional)
UI80,001		Printer returns codepage status
	FR"TEST"↵	Retrieve form
	?↵	Call for variables
Enter Product name:	EASYCODER↵	Substitute variable V00 (The selected font allows uppercase characters only)
Enter Model number:	501SA↵	Substitute variable V01
Checked by:	Dan↵	Substitute variable V02
Enter SERIAL#:		
100001	100000↵	Reset ,accept or enter[2] counter start value C0
Number of labels sets		Prompt
P1		Ignore
	P1↵	Enter P + Quantity of labels
Copies of each label		Prompt
1	2↵	Enter Quantity of copies + ↵

Continued!

*[1]/. Some host computers and terminal programs cannot handle prompts. In such cases, no **UI** command must be issued! Prompts cannot be used in connection with parallel communication.*

[2]/. A start value will only be displayed if the form already has been retrieved at least once. You can accept the displayed value or enter another value.

RETRIEVING AND PRINTING A FORM, cont'd.

Example, cont'd.

The example below demonstrates that it is not necessary to set the counter start value again. The counter internally keeps track of the last number issued and is updated according to instructions in the form.

Command	Explanation
↵	CR/LF to start command structure
FR"TEST"↵	Retrieve form
?↵	Call for variables
EASYCODER↵	Substitute variable V00
501SA↵	Substitute variable V01
Dan↵	Substitute variable V02
↵	*CR/LF to use existing counter value*
P1,2↵	Print 2 copies of 1 label

Once a form has been retrieved, it can be used over and over again until another form is retrieved. All variable input data and counter values are stored in memory. If prompts are enabled, existing data and counter values will be displayed on the screen after the related prompt. Any input data can be overwritten at will.

Command	Explanation
?↵	Call for variables in same form
↵	CR/LF to use existing data in V00
↵	CR/LF to use existing data in V01
Sam↵	*Substitute data in variable V02*
200000↵	*Substitute counter start value*
P1,1↵	*Print 1 copy of 1 label*

IMPORTANT!
Note that the question mark (?) following the FR command is essential for the printing of certain fields edited in the Form Edit Mode, i.e. fields containing variables, counters, time and/or date.

Variables and counter start values must be entered or accepted as described above, whereas time and date will be read from the optional real-time clock circuit. If no question mark is transmitted, all fields containing variable input, i.e. variables, counters, time and date, will be completely omitted from the printout.

A COMMAND – PRINT TEXT

Description

This command is used to print an ASCII text string.

Syntax

$Ap_1,p_2,p_3,p_4,p_5,p_6,p_7$,"DATA"

Parameters

p_1 *Horizontal start position (X) in dots*

p_2 *Vertical start position (Y) in dots[1]*

p_3
- *0 No Rotation*
- *1 90 degrees rotation clockwise*
- *2 180 degrees rotation clockwise*
- *3 270 degrees rotation clockwise*

p_4 *Font selection[2]:*
- *1 20.3 cpi, 6 points, (8 x 12 dots)*
- *2 16.9 cpi, 7 points, (10 x 16 dots)*
- *3 14.5 cpi, 10 points, (12 x 20 dots)*
- *4 12.7 cpi, 12 points, (14 x 24 dots)*
- *5 5.6 cpi, 24 points, (32 x 48 dots)*

p_5 *Horizontal multiplier 1, 2, 3, 4, 6, 8. (Magnifies the text horizontally)*

p_6 *Vertical multiplier 1, 2, 3, 4, 5, 6, 7, 8, 9. (Magnifies the text vertically)*

p_7
- *N Normal image*
- *R Reverse image*

"DATA" *Represents a fixed data field.*

[1]/. When using reverse image, space must be provided for the black background. Thus, vertical start position ≥ 2 dots must be used.

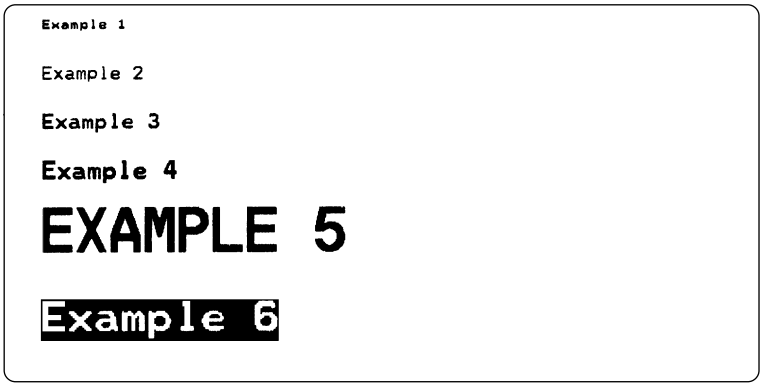
[2]/. Fonts 1 - 5 are fixed pitch. For character availability maps, see Appendix 3 "Fonts, Code Pages and Character Sets".

Continued!

A COMMAND – PRINT TEXT, cont'd.

Examples

```
↵
N ↵
A50,0,0,1,1,1,N,"Example 1" ↵
A50,50,0,2,1,1,N,"Example 2" ↵
A50,100,0,3,1,1,N,"Example 3" ↵
A50,150,0,4,1,1,N,"Example 4" ↵
A50,200,0,5,1,1,N,"EXAMPLE 5" ↵
A50,300,0,3,2,2,R,"Example 6" ↵
P1 ↵
```



Note:
Font size 5 only supports uppercase characters, as illustrated by example 5 above.

Remarks

The "DATA" field can be replaced by or combined with below commands:

Variable:

Vnn Prints the contents of variable "**nn**" at this position, where **nn** is a 2 digit number from 00 – 99.

Consecutive Number Counter:

Cn Prints the contents of counter "**n**" at this position, where **n** is a 1 digit number from 0 – 9.

Cn±x Prints the contents of counter "**n**" at this position while setting the counter's start value to "**x**". **n** and **x** are 1 digit numbers from 0 – 9 Enter + to increment or - to decrement.

Continued!

A COMMAND – PRINT TEXT, cont'd.

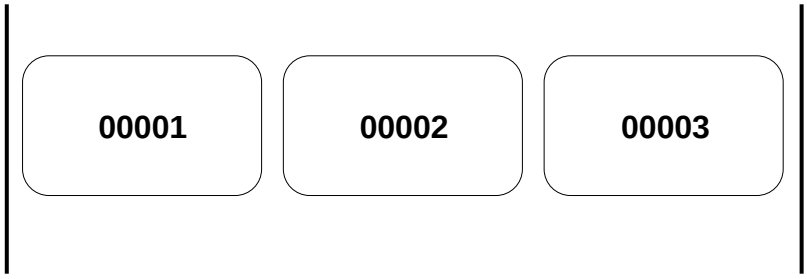
Remarks, cont'd.

Example:
When labels with consecutive numbers are printed next to each other across the web, it is done by using a single counter in a single form.

The command **Cn±x** in our example will be used twice and count up the single counter by one (1) in each position (last two A-command lines).

Set the Form Step Value $\mathbf{p}_4$ to +3 for the counter **Cn** used in our example (see the C-command line). Also refer to *"C Command – Counter"*.

```
↵
FK"TEST2" ↵
FS"TEST2" ↵
C0,5,L,+3,"Counter 0" ↵
A180,50,0,3,1,1,N,C0 ↵
A380,50,0,3,1,1,N,C0+1 ↵
A580,50,0,3,1,1,N,C0+2 ↵
FE ↵
```



Time:

TT Prints the current time at this position in the predefined format. See the TT command for format selection. This command is only available if a Memory Cartridge with a Real Time Clock is installed.

TT+nnn Prints "sell by" time. Adds **nnn** number of minutes (must be three digits) to the current time and places it on the form using time layout defined.

TD Prints the current date at this position in the predefined format. See the TD command for format selection. This command is only available if a Memory Cartridge with a Real Time Clock is installed.

TD+nn Prints "sell by" date. Adds **nn** number of days (must be two digits) to the current date and places it on the form using date layout defined.

Continued!

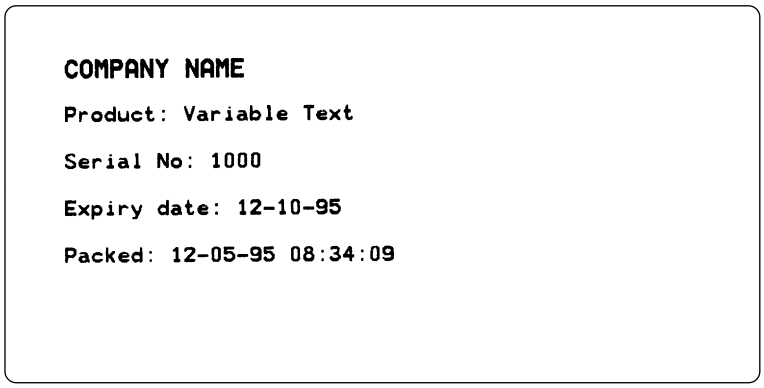
A COMMAND – PRINT TEXT, cont'd.

Remarks, cont'd.

This example illustrates how fixed text, variable text, counters, time and date can be used in text fields in the Form Edit Mode:

```
↵
FK"TEST1" ↵
FS"TEST1" ↵
V00,25,l,"Product name" ↵
C0,4,L,+1,"Start serial No"
A50,50,0,4,1,1,N,"COMPANY NAME"↵
A50,100,0,3,1,1,N,"Product: "V00 ↵
A50,150,0,3,1,1,N,"Serial No: "C0 ↵
A50,200,0,3,1,1,N,"Expiry date: "TD+05 ↵
A50,250,0,3,1,1,N,"Packed :"TD"_"TT↵
FE↵
```

After retrieving and printing the form, the label may e.g. look like this:



Combination of several options can also be used in a single text field:
A50,300,0,3,2,2,R,"Deluxe"V01C1"Combo"TDV01TT ↵
:Writes the text "Deluxe" + the contents of variable 01 + the contents of counter 2 + the text "Combo" + the current date + the contents of variable 01 + by the current time

B COMMAND – STANDARD BAR CODES

Description

This command is used to print standard bar codes.

Syntax

$Bp_1,p_2,p_3,p_4,p_5,p_6,p_7,p_8$,"DATA"

Parameters

p_1 *Horizontal start position (X) in dots*

p_2 *Vertical start position (Y) in dots*

p_3
0 No rotation
1 90 degrees rotation clockwise
2 180 degrees rotation clockwise
3 270 degrees rotation clockwise

p_4 *Barcode select. See table below.*

p_5 *Narrow bar width in dots. See table below.*

Barcode Type	*"p_4"*	*"p_5"*
Code 39 std. or extended	*3*	*1–10*
Code 39 with check digit	*3C*	*1–10*
Code 93	*9*	*1–10*
Code 128UCC case code	*0*	*1–10*
Code 128 A, B, C	*1*	*1–10*
Codabar	*K*	*1–10*
EAN8	*E80*	*2–4*
EAN8 2 digit add-on	*E82*	*2–4*
EAN8 5 digit add-on	*E85*	*2–4*
EAN13	*E30*	*2–4*
EAN 13 2 digit add-on	*E32*	*2–4*
EAN13 5 digit add-on	*E35*	*2–4*
German Postcode	*2G*	*1-10*
Interleaved 2 of 5	*2*	*1–10*
Interleaved 2 of 5 with check digit	*2C*	*1–10*
Interleaved 2 of 5 with human readable check digit	*2D*	*1–10*
Postnet 5, 6. 8 & 11 digit	*P*	*n.a.*
UCC/EAN 128	*1E*	*1-10*
UPC A	*UA0*	*2–4*
UPC A 2 digit add-on	*UA2*	*2–4*
UPC A 5 digit add-on	*UA5*	*2–4*
UPC E	*UE0*	*2–4*
UPC E 2 digit add-on	*UE2*	*2–4*
UPC E 5 digit add-on	*UE5*	*2–4*
UPC Interleaved 2 of 5	*2U*	*1-10*

p_6 *Wide bar width in dots (2 –30)*

p_7 *Barcode height in dots*

p_8
B Human readables ON
N Human readables OFF

"DATA" *Represents a fixed data field*

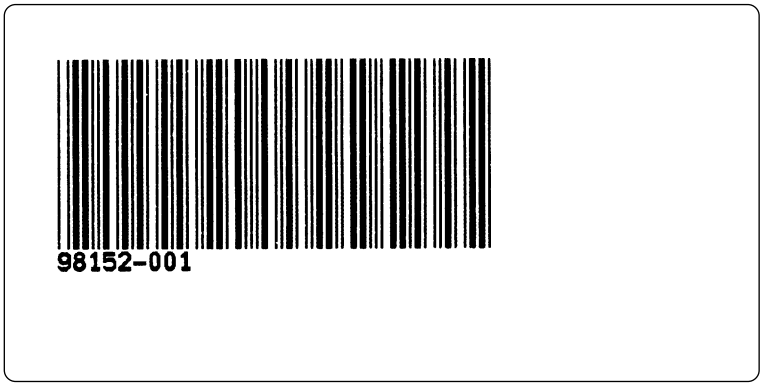
Continued!

B COMMAND – STANDARD BAR CODES, cont'd.

Example

This example produces a Code 39 bar code:

```
↵
N ↵
B50,50,0,3,2,10,200,B,"998152-001" ↵
P1 ↵
```



Remarks

The "DATA" field can be replaced by or combined with below commands:

Variable:

Vnn Prints the contents of variable "**nn**" at this position, where **nn** is a 2 digit number from 00 – 99.

Consecutive Number Counter:

Cn Prints the contents of counter "**n**" at this position, where **n** is a 1 digit number from 0 – 9.

Cn±x Prints the contents of counter "**n**" at this position while setting the counter's start value to "**x**". **n** and **x** are 1 digit numbers from 0 – 9 Enter + to increment or - to decrement.

Continued!

B COMMAND – STANDARD BAR CODES, cont'd.

Remarks, cont'd.

Example:
When labels with consecutive numbers are printed next to each other across the web, it is done by using a single counter in a single form.

The command **Cn±x** in our example will be used twice and count up the single counter by one (1) in each position (last two B-command lines).

Set the Form Step Value $\mathbf{p}_4$ to +3 for the counter **Cn** used in our example (see the C-command line). Also refer to *"C Command – Counter"*.

```
↵
FK"TEST3" ↵
FS"TEST3" ↵
C0,6,L,+3,"Counter 0" ↵
B120,50,0,2,3,6,100,B,C0 ↵
B320,50,0,2,3,6,100,B,C0+1 ↵
B520,50,0,2,3,6,100,B,C0+2 ↵
FE ↵
```

Time:

TT Prints the current time at this position in the predefined format. See the TT command for format selection. This command is only available if a Memory Cartridge with a Real Time Clock is installed.

TT+nnn Prints "sell by" time. Adds **nnn** number of minutes (must be three digits) to the current time and places it on the form using time layout defined.

TD Prints the current date at this position in the predefined format. See the TD command for format selection. This command is only available if a Memory Cartridge with a Real Time Clock is installed.

TD+nn Prints "sell by" date. Adds **nn** number of days (must be two digits) to the current date and places it on the form using date layout defined.

Continued!

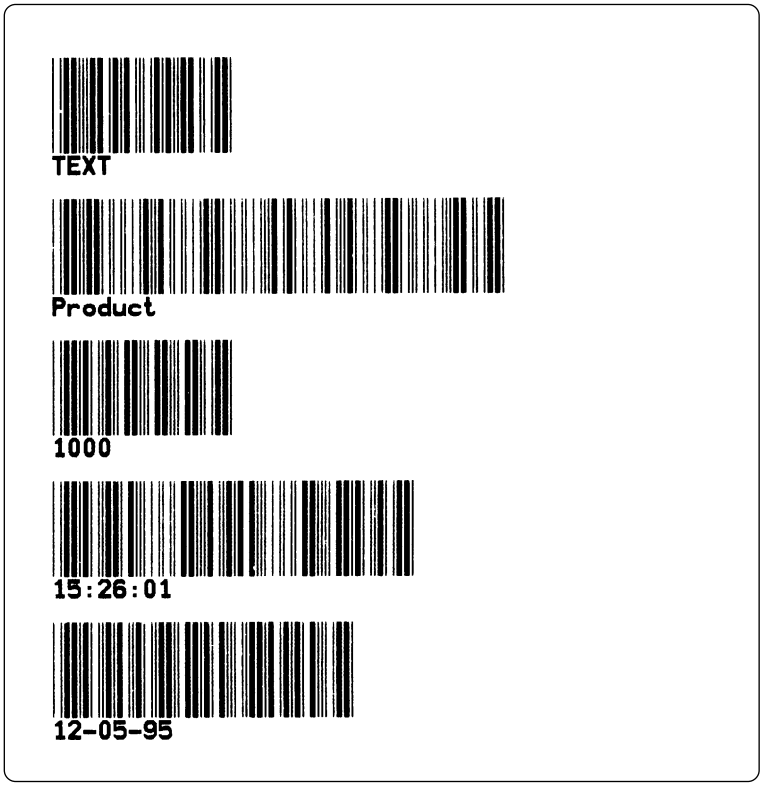
B COMMAND – STANDARD BAR CODES, cont'd.

Remarks, cont'd.

This example illustrates how fixed text, variable text, counters, time and date can be used in text fields in the Form Edit Mode:

```
↵
FK"TEST4" ↵
FS"TEST4" ↵
V00,25,l,"Product name" ↵
C0,4,L,+1,"Start serial No" ↵
B50,50,0,3,2,6,100,B,"TEXT" ↵
B50,200,0,3,2,6,100,B,V00 ↵
B50,350,0,3,2,6,100,B,C0 ↵
B50,500,0,3,2,6,100,B,TT ↵
B50,650,0,3,2,6,100,B,TD ↵
FE ↵
```

After retrieving and printing the form, the label may e.g. look like this:



Combination of several options can also be used, e.g:
B50,300,0,3,1,2,50,B,"Deluxe"V01C2"Combo"TDV01TT ↵
:Writes a Code 39 bar code containing the information "Deluxe" + the contents of variable 01 + the contents of counter 2 + the text "Combo" + the current date + the contents of variable 01 + by the current time

b COMMAND – TWO-DIMENSIONAL CODES, GENERAL

Description

This command is used to print two complex bar codes; *PDF 417* and *MaxiCode*. The command consists of two parts; a leading set of positioning and bar type select parameters, and a trailing code-specific part defining the bar code's appearance and its input data.

Syntax

bp_1,p_2,p_3,[code specific options]

Parameters

p_1 *Horizontal start position (X) in dots*
p_2 *Vertical start position (Y) in dots*
p_3 *Code type:*
M Selects MaxiCode
P Selects PDF417
[code specific options], see the following two pages

Remarks

If the amount of data will not fit in the area specified, the indicator will light orange, indicating an error.

b COMMAND – MAXICODE

Description

The following *MaxiCode* specific options should append the general part of the two-dimensional code command (**b** command), see page 66.

Syntax

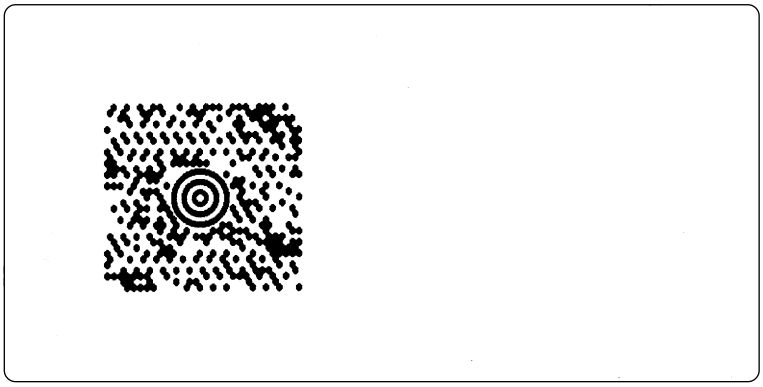
["CL,CO,PC,LPM"]

Parameters

CL	*Class Code (3 digit number)*
CO	*Country Code (3 digit number)*
PC	*Postal Code:*
	U.S.A (5 digits,4 digits) Note the separating comma sign!
	International (6 alphanumeric characters)
LPM	*Low Priority Message (up to 84 alphanumeric characters)*

Example

```
N ↵
b100,100,M,"300,400,93065,1692,This is MaxiCode" ↵
P1 ↵
```



b COMMAND – PDF 417

Description

The following PDF 417 bar code specific options should append the general part of the two-dimensional code command (**b** command), see page 66.

Syntax

[www,hhh,s,c,p,f,d,x,y,r,l,t,o],"DATA"

Parameters

www *Maximum print width in dots (3 digits)*

hhh *Maximum print height in dots (3 digits)*

s *Sets error correction level. Legal values are 0 thru 8. If level is not specified, a level that will generate about 1/8 as many ECC codewords as data codewords is selected*

c *Selects data compression method:*
- *0 Selects auto-encoding (default)*
- *1 Selects binary mode*

p *Print human readable code appended by additional variables:*
- *xxx horizontal start location (3 digits)*
- *yyy vertical start location (3 digits)*
- *mmm maximum characters per line (3 digits)*

f *Centre pattern in area:*
- *0 The pattern will print upper left justified in the area defined by the w and h values*
- *1 The pattern is printed in middle of the area defined by the w and h values (default)*

d- *Print codewords:*
- *0 Values of codewords not printed (default)*
- *1 Values of codewords printed*

x- *Module width. Legal values are 2 – 9*

y- *Set bar height. Legal values are 4 – 99 dots high*

r- *Maximum row count (refer to PDF 417 specifications)*

l- *Maximum column count (refer to PDF 417 specifications) Note that this character is lowercase L.*

t- *Truncated flag:*
- *0 Not truncated*
- *1 Truncated*

o- *Rotation:*
- *0 0° rotation clockwise*
- *1 90° rotation clockwise*
- *2 180° rotation clockwise*
- *3 270° rotation clockwise*

DATA *Represents a fixed data field.*

Continued!

b COMMAND – PDF 417, cont'd.

Example:

```
↵
N ↵
b40,40,P,400,300,p40,340,20,f1,x3,y10,r60,l5, →
→ "ABCDEFGHIJK1234567890abcdefghijk" ↵
P1 ↵
```

C COMMAND – COUNTER

Description

This command is used to define one of max. 10 automatic counters used in consecutive numbering applications (e.g. serial numbers). Counters can only be used in the Form Edit Mode, not in the Direct Mode.

Syntax

Cp_1,p_2,p_3,p_4,"[-][- -]PROMPT"

Parameters

p_1 *Counter number (0 – 9)*

p_2 *Maximum number of digits for the counter (1–29)*

p_3 *Field justification:*
- *L Left justification*
- *R Right justification*
- *C Centre justification*
- *N No justification*

p_4 *Step value. Plus or minus sign followed by a single digit (1–9)*
- *+ Incrementation*
- *- Decrementation*

[-] *A single leading minus sign in the prompt field will cause the prompt to be sent one time only after the form is retrieved (Keyboard Display Unit only, see below).*

[- -] *A double leading minus sign in the prompt field will cause the prompt to be suppressed (Keyboard Display Unit only, see below).*

PROMPT *An ASCII text field that will be transmitted to the Keyboard Display Unit or host via the serial interface each time a form containing this command is retrieved. It usually requests the operator to enter the starting value for the counter.*

Remarks

This command is used in **forms** that require sequential numbering. When initializing counters, they must be defined in order (e.g. C0, C1 C2 etc.) **after** possible variables.

To print the contents of the counter, the counter number (**C0** – **C9**) is entered in the "DATA" field of **A** (Print Text) or **B** (Print Bar Code) commands.

Prompts will only be displayed if a **UI** command has been issued after last power-up. The Keyboard Display Unit (KDU) sends the **UI** command automatically.

The field justification parameter ($\mathbf{p_3}$) affects the way the counter will be printed. When $\mathbf{p_3}$ = **L**, **R**, or **C**, the counter value will be printed left, right or centre justified in an area with a width defined by $\mathbf{p_2}$ (number of digits). If no justification is selected ($\mathbf{p_3}$ = **N**), the field will truncated from the right side so as to not exceed the set maximum field length, which may be useful when using a counter as input data to a bar code.

Continued!

C COMMAND – COUNTER, cont'd.

Remarks, cont'd.

If the start value entered, when the form is retrieved for printing, is started by one or several zeros (0), the entire area specified by $\mathbf{p}_2$ (number of digits) will be padded with leading zeros, i.e. $\mathbf{p}_3$ (field justification) will have no effect.

Note: If a single counter is stepped up several times on the same form, then the step value $\boldsymbol{p}_4$ *must be set to the number of times the counter is used in the form or equivalent to what the step values for the single counter add up to in this form. A* ***Cn±x*** *command must also be used when designing the actual form. See the* ***A*** *and* ***B*** *commands.*

Example

This form lets you test field justifications by entering various start values when the form is retrieved for printing. Test various number of digits, with and without leading zeros.

```
↵
FK"TEST5"
FS"TEST5"
C0,5,L,+1,"Start value CNT 0"
C1,5,R,+1,"Start value CNT 1"
C2,5,C,+1,"Start value CNT 2"
C3,5,N,+1,"Start value CNT 3"
A50,50,0,3,1,1,N,"Counter left justified: "
A50,100,0,3,1,1,N,"Counter right justified: "
A50,150,0,3,1,1,N,"Counter centre justified: "
A50,200,0,3,1,1,N,"Counter not justified: "
FE
```

Continued!

C COMMAND – COUNTER, cont'd.

Protecting Counters

When the optional Keyboard Display Unit (KDU) is used, the label form can be designed to "skip" a consecutive number prompt, thereby protecting the data. This feature is especially useful when the counter represents a serial number or other types of number, that should never be repeated.

By placing one (1) minus sign as the first character of the prompt, the prompt will appear only once after the form is retrieved.

Example:
C0,10,L+1,"-Enter Serial Number:" ↵

By placing two (2) minus signs as the first two characters of the prompt, the prompt will never be displayed.

Example:
C0,10,L+1,"- -Enter Serial Number:" ↵

The protected consecutive number is accessed and modified from the optional Keyboard Display Unit only.

Enter the following when the KDU is displaying:

```
FORM - retrieve form
F2 - list forms vx.x
```

1. If necessary, press <**Exit**> key to display above.
2. Press <**F1**> key.
3. Press **4 9 1 6.**
4. Press <**Form**> key.
5. Key in Form name and press <**Enter**> to retrieve.
6. Enter or modify the consecutive number.
7. When complete, print label to store new number in memory.

D COMMAND – DENSITY

Description

This command is used to select the print density.

Syntax

Dp_1

Parameters

p_1 *Density setting (0 – 15). Default value 7.*
0 is the lightest printing and 15 is the darkest

Remarks

The density command is used to control the energy to the printhead. There are a number of factors that affect the actual darkness of the printout:
• Direct thermal printing or thermal transfer printing
• Print speed
• Different brands of direct thermal paper
• Different combination between transfer ribbons and receiving face materials

The printed information may also require the density to be adjusted. Typically, this applies to horizontal (picket fence) and vertical (ladder) bar codes, but text and graphics may also require adjustment. Thus, we recommend the following settings to be used initially. Test after the print speed has been set (see **S** command) and make further adjustments until you have found the settings which apply to your unique application:

Type of Printing		Rec. Density at S= 2 (50 mm/sec)
Direct thermal printing:		
UBI Economy		9
UBI Premium		9
Thermal transfer printing (Europe):		
GP91 ribbon	UBI Vellum paper	4
GP91 ribbon	UBI Matte coated paper	4
HP91 ribbon	UBI Matte coated paper	7
HP91 ribbon	Semi gloss paper	6
HR91 ribbon	Synthetic gloss	8
Thermal transfer printing (USA):		
GP92 ribbon	Bond paper	3
GP92 ribbon	Matte coated paper	0
HP92 ribbon	Matte coated paper	4
HP92 ribbon	Semi gloss paper	8
HR91 ribbon	Synthetic gloss	8

Example

D9 ↵ *:Selects density 9*

FE COMMAND – END FORM STORE

Description

This command is used to end a Form Store sequence.

Syntax

FE

Remarks

The Form Store sequence is started with the **FS** command and ended with the **FE** command.

Example

```
FS"formname" ↵                    :Starts Form Store
.....
FE ↵                              :Ends Form Store
```

FI COMMAND – PRINT FORM INFORMATION

Description

This command makes the printer produce a list of all forms stored in memory.

Syntax

```
FI
```

Remarks

The **FI** command will be executed directly, without appending any Linefeed.

Hint:
Issue a FI command after having stored a form to make sure the storing was successful and to check the amount of free form memory.

Example

FI *:Prints forms list*

```
Form information:
TEST5
TEST2
TEST3
TEST4
TEST1
Form memory left:004.7K
```

FK COMMAND – DELETE FORM

Description This command is used to delete a specified form or all forms from memory.

Syntax

```
FK "name" | "*"
```

Parameters

"name" *By entering a name of a form, that form only will be deleted from memory*

""* *By entering an asterisk (*) as wildcard, all forms will be deleted from memory*

Examples

```
FK"FORM1" ↵          :Deletes "FORM1"
FK "*" ↵             :Deletes all forms
```

FR COMMAND – RETRIEVE FORM

Description This command is used to retrieve a form that was previously stored in memory.

Syntax

```
FR"name"
```

Parameters

"name" *This is the form name used when the form was stored. The printer is case sensitive, i.e. the use of upper and lower case letters must match the original name.*

Remarks To print a list of the forms currently stored in memory, use the **FI** command.

Example

```
FR"Test1" ↵          :Retrieves the form named "Test1"
```

FS COMMAND – FORM STORE

Description

This command is used to begin a Form Store sequence.

Syntax

FS"name"

Parameters

"name" *This is the form name that will be used when retrieving the stored form. The name may be from 1 to 8 characters. The printer is case sensitive, i.e. form names will be stored with the exact case entered on the FS command line.*

Remarks

All commands following **FS** will be stored in the Forms memory until a FE command is received, ending the form store process.

If a form with the same name is already stored in memory, the **FS** command will result in an error and the old form will be retained. When updating a form, use the **FK** command to delete the old version before storing the new version.

To print a list of the forms currently stored in memory, use the **FI** command.

Some commands are not allowed in the form store process. Refer to the list on page 48 to check which commands can be used.

Important!
*Always make backup copies on the host! If you need to change the memory allocation (see **M** command), or if the RAM backup batteries should run out, all formats and graphics store in the printer and memory cartridge will be lost.*

Startup Form

A special case of forms is the startup form, that is automatically retrieved and prompted for variables (if necessary) each time power is applied to the printer. A startup form is created by naming the form "AUTOFR". To exit the "AUTOFR" mode, send XOFF or NULL to the printer on the serial interface.

Important!
Always test the form using another name before making it a startup form. If a startup form causes an error, there are two ways of clearing it:
- *If the indicator lamp shines **green**, send XOFF or NULL to exit "AUTOFR" mode. Then delete the startup file using FK "AUTOFR"*
- *If the indicator lamp shines **orange**, there is no communication and the RAM memory must be erased by removing the backup battery on the CPU board and possibly also in the optional Memory Cartridge.*

Example

```
FS"TEST1" ↵          :Begins the form store sequence of "TEST1"
. . . . .
FE ↵                 :Ends the form store sequence of "TEST1"
```

GG COMMAND – PRINT GRAPHICS

Description

This command is used to print a graphic that has been previously stored in memory.

Syntax

GGp_1,p_2,"name"

Parameters

p_1	*Horizontal start position (X) in dots*
p_2	*Vertical start position (Y) in dots*
"name"	*This is the name used when the graphic was stored. The name may be from 1 to 8 characters. The printer is case sensitive, i.e. the use of upper and lower case letters must match the original name.*

Remarks

A graphic can only be printed in same direction and size as when it was saved. There are no means of magnification or rotation of an individual graphic. However, the entire print image including all text, bar codes, graphics, lines, and boxes can be rotated 180° using the **Z** command.

Example

`GG50,50,"LOGO1"` ↵ *:Prints the graphic "LOGO1"*

GI COMMAND – PRINT GRAPHICS INFORMATION

Description

This command will cause the printer to print a list of all graphics stored in memory.

Syntax

GI

Remarks

The **GI** command will be executed directly, without appending any Linefeed.

Hint:
Issue a GI command after having stored a graphic to make sure the storing was successful and to check the amount of free graphic memory.

Example

GI *:Prints graphics list*

```
Graphics information:
UBILOGO
Graphics memory left:002K
```

GK COMMAND – DELETE GRAPHICS

Description

This command is used to delete a specified graphic or all graphics from memory.

Syntax

GK "name" | "*"

Parameters

"name" *By entering a name of a form, that form only will be deleted from memory*

""* *By entering an asterisk (*) as wildcard, all forms will be deleted from memory*

Examples

GK"LOGO1" ↵ *:Deletes "LOGO1"*

GK "*" ↵ *:Deletes all graphics*

GM COMMAND – STORE GRAPHICS

Description

This command is used to store PCX graphics files in memory.

Syntax

GM"name"p_1 ↵
"DATA"

Parameters

"name"	*This is the graphic name that will be used when retrieving the stored graphic. The name may be from 1 to 8 characters. The printer is case sensitive, i.e. graphic names will be stored with the exact case entered on the GM command line.*
p_1	*This is the size of the original .PCX file in bytes. In DOS, use the DIR command can be used to determine the exact file size.*
"DATA"	*The graphic data in 1-bit (black & white) PCX format.*

Remarks

In a DOS system, the "DATA" portion can be sent to the printer via the parallel port using the DOS COPY command.

Example

Let us assume you have a PCX file named UBI.PCX in your current directory.

Use a text editor, e.g. *Windows Notepad*, to create a text file called e.g. STOREIT.TXT and store it in the same directory as the .PCX file:

↵
GM"UBI"3768 ↵

At the DOS prompt, type:
COPY STOREIT.TXT + UBI.PCX PRN /b
(This command stores the image in the default printer).

or...

COPY STOREIT.TXT + UBI.PCX LPT1: /b
(This command stores the image in the printer connected to port LPT1).

After downloading, the **GI** command can be used to verify that the graphic was successfully stored. If the downloading did not succeed, first check that the .PCX file is in 1-bit (black & white) format and that the free graphics memory in the printer is large enough to store the graphics.

Important!
*Always make backup copies on the host! If you need to change the memory allocation (see **M** command), or if the RAM backup batteries should run out, all formats and graphics store in the printer and memory cartridge will be lost.*

I COMMAND – CHARACTER SET SELECTION

Description

This command is used to select the proper character set.

Syntax

Ip_1,p_2,p_3	*(I is uppercase i)*

Parameters

p_1 *Number of data bits (7 or 8)*
p_2 *Printer Code Page (1 digit, see table 1 below)*
p_3 *KDU Country Code (3 digits, see table 2 below). Only if p_1 = 8*

Table 1: Printer Code Page

7 data bits (p_1=7)		**8 data bits (p_1=8)**		
p_2	***Country***	***p_2***	***Code Page***	***Country***
0	USA	0	437	English
1	British	1	850	Multilingual (Latin 1)
2	German	2	852	Slavic
3	French	3	860	Portugal
4	Danish	4	863	Canadian (French)
5	Italian	5	865	Nordic
6	Spanish			
7	Swedish			
8	Swiss			

Table 2: KDU Country Code (8 bits only)

Code	***Country***	***Code***	***Country***	***Code***	***Country***
032	Belgium	031	Netherlands	034	Spain
002	Canada	039	Italy	046	Sweden
045	Denmark	003	Latin America	041	Switzerland
358	Finland	047	Norway	044	U.K.
033	France	351	Portugal	001	U.S.A.
049	Germany	027	South Africa		

The default setting is **I**8,0,001. For additional information and code page examples, refer to Appendix 3.

Example

`I8,5,046` ↵ *:Selects 8 bit character set for use in Sweden.*

JB COMMAND – DISABLE TOP OF FORM BACKUP

Description

This command disables automatic top of form backup of the paper.

Syntax

JB

Remarks

Top of form backup is used in connection with the **j** command, which makes the printer feed out an extra amount of paper after printing the label, so as to allow the paper to be torn off or peeled off properly.

By default, the paper is pulled back before printing the first label in next batch as to allow the printing to start at the top of the label, see **JF** command.

The **JB** command will disable this function, i.e. any **j** command will be ignored, and the printer will stop feeding when the end of the label becomes aligned with the printhead's dot line. However, the **j** command is kept stored in memory and can be enabled again using a **JF** command.

Example

JB ↵ *:Disables top of form backup*

JF COMMAND – ENABLE TOP OF FORM BACKUP

Description

This command enables automatic top of form backup of the paper.

Syntax

JF

Remarks

Top of form backup is used in connection with the **j** command, which makes the printer feed out an extra amount of paper after printing the label, as to allow the paper to be torn off or peeled off properly.

By default, top of form is enabled, i.e. the paper is pulled back before printing the first label in next batch as to allow the printing to start at the top of the label.

Top of form backup can be disabled by a **JB** command, i.e. any **j** command will be ignored, and the printer will stop feeding when the end of the label becomes aligned with the printhead's dot line. However, the **j** command is kept stored in memory and can be enabled again using a **JF** command.

Example

JF ↵ *:Enables top of form backup*

j COMMAND – PAPER FEED ADJUSTMENT

Description

This command makes it possible to set the paper feed for either tear-off or peel-off operation.

Syntax

jp_1

Parameters

p_1 *Length of paper feed after printing in dots (0–999)*
Recommended values:
Tear-off operation: 140
Peel-off operation: 110

Remarks

When using peel-off operation, the labels should remain slightly stuck to the backing paper so they do not fall off by their own weight, still can be manually removed with ease.

In the case of tear-off operation, the paper should be fed so the pre-perforation between tags or the gap between labels become aligned with the tear-off edge.

The **j** command allows the paper feed to be adjusted accordingly, i.e. after the printer has been printed and the rear edge becomes aligned with the printhead's dot line, an extra amount of paper feed is performed.

Warning!
Do not use extremely small or large values for the j command, since they may cause the printer to feed or pull back the paper continuously.

The extra paper feed set by the **j** command can be enabled or disabled by means of **JF** and **JB** *"Top of Form Backup"* commands respectively. By default *"Top of Form Backup"* is enabled.

Examples

```
j110 ↵    :Adjustment for peel-off operation
j140 ↵    :Adjustment for tear-off operation
```

LE COMMAND – LINE DRAW EXCLUSIVE

Description

This command is used to draw black lines where the line will be white when intersecting a black area or object and vice versa.

Syntax

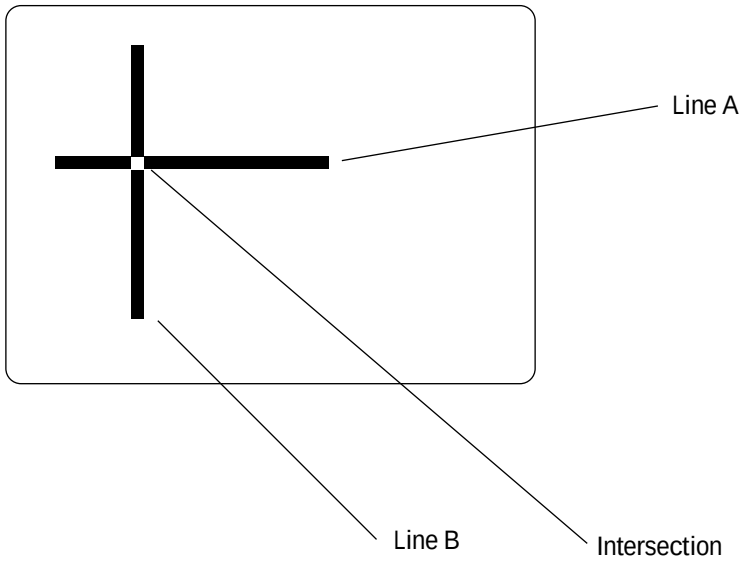
LEp_1,p_2,p_3,p_4

Parameters

p_1	*Horizontal start position (X) in dots*
p_2	*Vertical start position (Y) in dots*
p_3	*Horizontal length in dots*
p_4	*Vertical length in dots*

Example

```
N ↵                          :Clears image buffer
LE50,200,400,20 ↵            :Draws line A
LE200,50,20,400 ↵            :Draws line B
P1 ↵                         :Prints one label
```



LO COMMAND – LINE DRAW BLACK

Description

This command is used to draw black lines, overwriting previous information.

Syntax

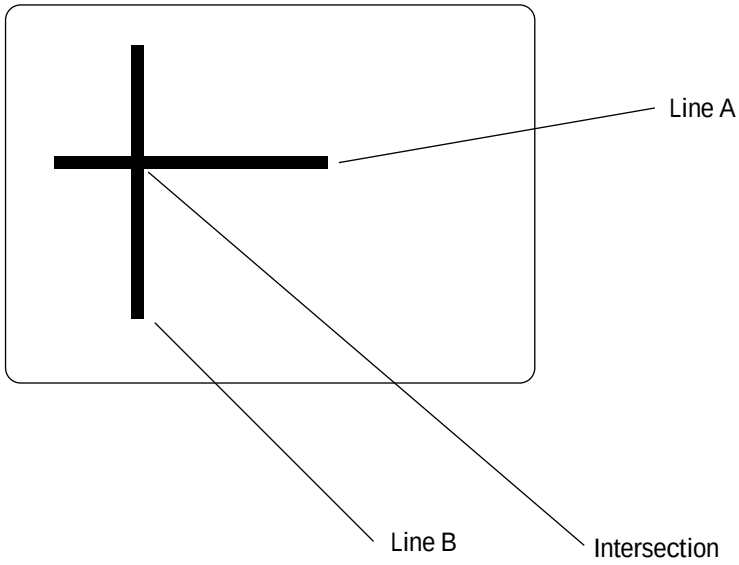
LOp_1,p_2,p_3,p_4

Parameters

p_1	*Horizontal start position (X) in dots*
p_2	*Vertical start position (Y) in dots*
p_3	*Horizontal length in dots*
p_4	*Vertical length in dots*

Example

```
N ↵                          :Clears image buffer
LO50,200,400,20 ↵            :Draws line A
LO200,50,20,400 ↵            :Draws line B
P1 ↵                         :Prints one label
```



LS COMMAND – LINE DRAW DIAGONAL

Description

This command is used to draw diagonal black lines overwriting previous information.

Syntax

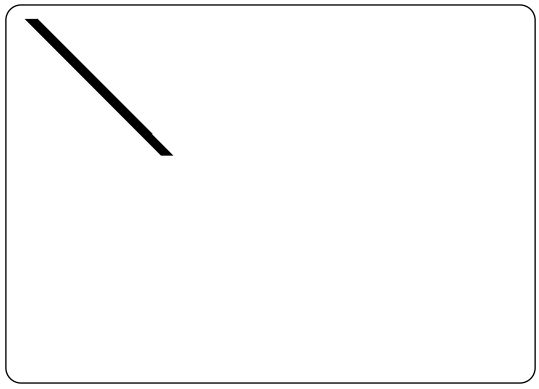
LSp_1,p_2,p_3,p_4,p_5

Parameters

p_1	*Horizontal start position (X) in dots*
p_2	*Vertical start position (Y) in dots*
p_3	*Line thickness in dots*
p_4	*Horizontal end position (X) in dots*
p_5	*Vertical end position (Y) in dots*

Example

```
N ↵                          :Clears image buffer
LS10,10,20,200,200 ↵         :Draws diagonal line
P1 ↵                         :Prints one label
```



LW COMMAND – LINE DRAW WHITE

Description

This command is used to draw white lines, effectively erasing previous information.

Syntax

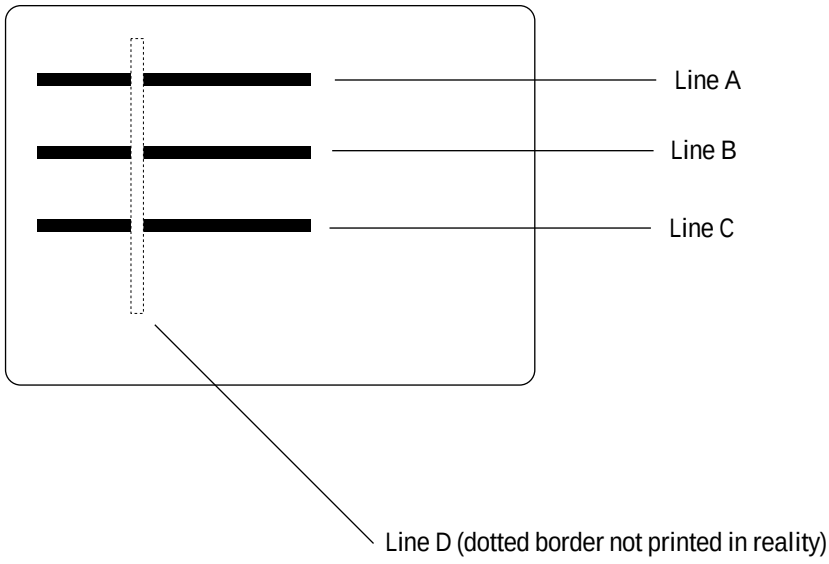
LWp_1,p_2,p_3,p_4

Parameters

p_1	*Horizontal start position (X) in dots*
p_2	*Vertical start position (Y) in dots*
p_3	*Horizontal length in dots*
p_4	*Vertical length in dots*

Example

```
N ↵                          :Clears image buffer
LO50,100,400,20 ↵            :Draws black line A
LO50,200,400,20 ↵            :Draws black line B
LO50,300,400,20 ↵            :Draws black line C
LW200,50,20,400 ↵            :Draws white line D
P1 ↵                         :Prints one label
```



M COMMAND – MEMORY ALLOCATION

Description

This command is used to allocate or partition the printer's memory into separate areas for image buffer, forms, graphics, and soft fonts (not used).

Syntax

Mp_1,p_2,p_3

Parameters

p_1	*Image buffer area in whole Kbytes*
p_2	*Form memory area in whole Kbytes*
p_3	*Graphic memory area in whole Kbytes*
	All remaining memory will be allocated as soft font memory.

Remarks

The command to allocate the memory may have to be performed to initialize the printer if the current memory areas are too small.

IMPORTANT:

The M command will also erase all forms and graphics and return printer default settings.

The **M** command line will set image buffer, form and graphic memory area. The remainder will automatically be allocated to a *Soft Fonts Memory*, a feature presently not used in *EasyCoder 91*. As standard, the printer is fitted with 128 Kbytes RAM, which by default is allocated like this:

- Image buffer: 106 Kbytes
- Form memory: 5.1 Kbytes
- Graphics memory: 5 Kbytes
- Soft fonts memory: 3 Kbytes *(also called E-memory)*
- The printer's firmware requires approx. 9 Kbytes.

As an option, the *EasyCoder 91* can be fitted with a memory cartridge containing an additional 128 kbytes or 384 kbytes of RAM. When memory is allocated, the printer's internal memory is used first. Thus, when using memory cartridges, allocate at least 118 kbytes to the image buffer to make sure that forms and graphics are stored in the removable memory cartridge[1].

The printer can detect if a memory cartridge if inserted or not:

- If a cartridge is present, the printer will take the setup information from the cartridge.
- If a cartridge is not present, then the printer will take the setup information from its internal RAM memory.
- If a memory cartridge is removed, the printer will use its default setup, see page 49.

Therefore, memory cartridges can be moved from printer to printer and function the same way in each one.

The amount of memory and the current allocation can be printed on a label using the **U** command or by printing a test label in the Test Mode, see page 32.

[1]/. Typical memory setup for a printer with a 128 Kbyte memory cartridge:
M118,63,63
The proportions between form and graphics memory may be changed. e.g.
M118,20,106

Continued!

M COMMAND – MEMORY ALLOCATION, cont'd.

Remarks, cont'd.

When is it necessary to reconfigure memory in the printer?

- If your label size is larger then the current image buffer.
- If you need to change the size of the forms memory to accommodate more or less forms.
- If you need to change the size of the graphics memory to accommodate more or less graphics.
- If you have replaced the EPROM
- If you have fitted an unformatted memory cartridge.

Image Buffer

The image buffer is the area where the active print image is temporarily stored. Calculate the memory size needed for your *image* area by measuring the largest form intended to be printed (take future needs into consideration).

For less than full width labels, also refer to the **q** command, which allows trading off print width for increased label length with the same image buffer size.

Formulas:

[(Height in mm x Dots per mm) x (Width in mm x Dots per mm)]/ (1024 x 8) = Kbytes required
or
[(Height in inches x Dots per inch) x (Width in inches x Dots per inch)]/ (1024 x 8) = Kbytes required
The printhead has a density of 8 dots per mm or 203.2 dots per inch.

Rule of thumb for <u>full</u> width labels:
Label height in inches × 22Kb (Min. 44Kb)
Label height in mm × 1Kb (Min. 44Kb)
Round off to the next higher whole number.

Form Memory

The Form memory is for permanent storage of label forms. A typical form requires 1 kbyte of memory. The size of each form can, for example, be displayed with a DIR command at the DOS prompt.

Graphics Memory

The Graphics memory is for permanent storage of label graphics. Graphic files can vary greatly in size. The size of each PCX file can, for example, be displayed with a DIR command at the DOS prompt.

Examples

Resetting the memory via the serial port:

`M104,5,5` ↵ *:Sets the memory to the default value 106,5.1.5,3* [1]

Continued!

M COMMAND – MEMORY ALLOCATION, cont'd.

Examples, cont'd.

Resetting the memory via the parallel port (Windows driver):

When installing a memory cartridge, or when you need to print extra long labels (see below), you may want to change the memory allocation without having to set up a serial communication. Using the *MS-DOS Prompt* in *Windows 3.1x*, you can send the necessary **M** command via the parallel port as follows:

In a text editor, e.g. *Windows Notepad*, write the desired **M** command, e.g.:
M118,20,106↵

Save the text file in the directory **c:\windows** under a suitable name (e.g. **memsetup.txt**).

In the ***Main*** group of *Windows 3.1x* ***Program Manager***, double-click the ***MS-DOS Prompt*** icon.

In ***MS-DOS***, the directory **c:\windows** is selected by default:
C:\WINDOWS>_

Enter the following ***DOS*** command:
C:\WINDOWS>**copy memsetup.txt lpt1:** ↵

MS-DOS responds by displaying:
1 file(s) copied
C\:WINDOWS>

Exit ***MS-DOS*** by typing:
C\:WINDOWS> **exit** ↵

Maximizing the Image Buffer:

When using the *Windows* printer driver, or the Direct Mode only, you have no need for any form or soft font (E) memory. In the *Windows* printer driver, you do not need any graphics memory at all, and possibly you can also dispense with graphics in the Direct Mode. Thus, to be able to print as long labels as possible, you can allocate most of or the entire RAM memory to the image buffer:

M117,0,0↵ *:Sets max. image buffer for printer w/o memory cartridge*
M245,0,0↵ *:Sets max. image buffer for printer w. 128 Kbyte cartridge*
M501,0,0↵ *:Sets max. image buffer for printer w. 384 Kbyte cartridge*

This table illustrates the connection between the **M** command, the memory allocated to the print buffer and the maximum print length at full print width in the Direct Mode:

Command	Image Buffer Size	Maximum Print Length
M117,0,0 ↵	119 Kbyte	1150 dots = 143.75 mm (5.65")
M245,0,0 ↵	250 Kbyte	2400 dots = 300.00 mm (11.81")
M501,0,0 ↵	513 Kbyte	4930 dots = 616.25 mm (24.26")

*[1]/. The default settings above format memory for a 127 mm (5)" long **full width** label. Also note that the memory allocation values returned e.g. by a **U** command may differ slightly from the values entered using an **M** command because of certain round off calculations in the firmware. This should have few practical consequences and can generally be ignored.*

[2]/. The example assumes that MS Windows 3.1x is installed in drive C:\ and that the printer is connected to LPT1:

N COMMAND – CLEAR IMAGE BUFFER

Description

This command is used to clear the image buffer before building a new image.

Syntax

N

Remarks

The **N** command is essential when printing labels in the Direct Mode. It is not necessary to use an **N** command before printing a form. An **N** command must not be used inside a form in the Form Edit Mode.

Example

```
N ↵                    :Clears image buffer
```

O COMMAND – OPTIONS SELECT

Description

This command is used to disable or enable various printer options.

Syntax

O[S,N,D]

Parameters

S	*Reverse operation of label gap sensor, so the sensor will interpret blockage of light as a gap*
N	*Disable label-taken sensor (LTS)*
D	*Disable the ribbon end sensor*

Remarks

An **O** command without any trailing parameter resets operation of label gap sensor to normal, enables label-taken sensor, and enables the ribbon end sensor (thermal transfer models only). This is the default settings.

An **O** command supplemented by one, two, or three trailing parameters (**S**, **N** and/or **D**) changes the settings for the parameters included in the command.

S Parameter:
Before using the **S** parameter, make sure to load the printer with the appropriate type of paper.

N Parameter:
EasyCoder 91 Peel-off models are fitted with a label taken sensor. When the label taken sensor is enabled (default), the communication to the printer will be BUSY as long as the sensor detects a label in the outfeed slot.

D parameter:
The ribbon end sensor detects reflections from the trailing silvery part of the transfer ribbon. Once the ribbon has been removed, the error is cleared and you can either load a new supply of transfer ribbon, or change to direct thermal paper. However, switching between thermal transfer printing and direct thermal printing requires the heat density to be adjusted using a **D** command, see page 73.

Examples

O ↵	*:All options set to default*
ON ↵	*:Normal label gap sensor operation* *:LTS disabled* *:Ribbon end sensor enabled*
ON,D ↵	*:Normal label gap sensor operation* *:LTS disabled* *:Ribbon end sensor disabled*
OS,N,D ↵	*:Reverse label gap sensor operation* *:LTS disabled* *:Ribbon end sensor disabled*

P COMMAND – PRINT

Description

This command is used to print the contents of the image buffer.

Syntax

$Pp_1[,p_2]$

Parameters

p_1 *Numbers of label sets (1–65535). Default 0.*

p_2 *Number of copies of each label (1–65535). Used in combination with counters to print multiple copies of the same label.*

Remarks

Important!
The **P** command cannot be used inside a stored form sequence. For automatic printing of stored forms, use the **PA** command.

Examples

P ↵ *:Prints one label set*
P1 ↵ *:Prints one label set*
P2,1 ↵ *:Prints two label sets of one label each*
P5,2 ↵ *:Prints five label sets of two labels each*

*The principles for how counters are printed is illustrated by this example, where the print command is **P3,2**:*

Counter: 1	*Label No. 1*
Counter: 1	*Label No. 2*
Counter: 2	*Label No. 3*
Counter: 2	*Label No. 4*
Counter: 3	*Label No. 5*
Counter: 3	*Label No. 6*

PA COMMAND – PRINT AUTOMATIC

Description

This command is used in a stored form sequence to automatically print the form as soon as all variable data has been supplied.

Syntax

PAp_1[,p_2]

Parameters

p_1 *Numbers of label sets (1–65535). Default 0.*

p_2 *Number of copies of each label (1–65535). Used in combination with counters to print multiple copies of the same label.*

Remarks

Refer to the **P** command for explanations on how to print multiple labels with counters. The **PA** command follows the same principles.

Warning!
*The **PA** command can only be used with forms containing at least one variable (see **V** command). If there is no variable in the form, the printer will enter a loop and print continuously!*

Examples

```
FK"TEST6" ↵                          :Deletes form "1"
FS"TEST6" ↵                          :Starts form store sequence
V00,50,N,"Enter text" ↵              :Defines variable
A24,24,0,4,1,1,N,V00 ↵               :Writes line of text incl variable
PA1 ↵                                :Prints 1 label automatically
FE ↵                                 :Ends form store sequence

FR"TEST6" ↵                          :Retrieves form "1"
? ↵                                  :Gets variables
This is variable text                :Data for variable 00
```

Q COMMAND – SET FORM LENGTH (LSS)

Description

This command is used to set the form and gap length when using the standard label stop sensor (LSS).

Syntax

$Qp_1,p_2[\pm p_3]$

Parameters

p_1	*Label length measured in dots*
p_2	*Gap length measured in dots*
$\pm p_3$	*Optional offset length measured in dots*

Remarks

As standard, all *EasyCoder 91* printers have a label stop sensor designed to detect the top of each label or tag. It does this in two ways:

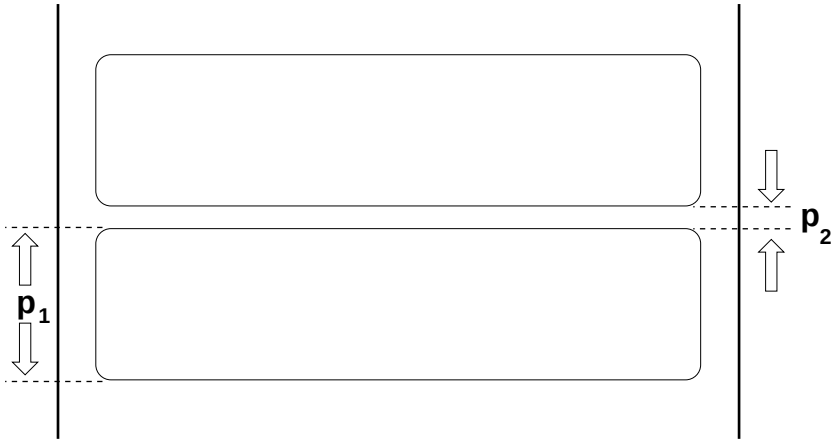
- By looking through the semi-transparent backing paper in the gap between labels, or
- By looking through a hole in the tag.

The LSS is located in the centre of the label path.

When entering the Test Mode (see page 32), or when printing a form for the first time after power-up using the Windows Driver (see page 22), the printer automatically determines the **Q** value while feeding a couple of labels. The current **Q** value is printed on the test label and the label produced by a **U** command.

Examples

Rectangular label:
$\mathbf{p_1}$ = 20.0 mm (160 dots)
$\mathbf{p_2}$ = 3.0 mm (24 dots)



The **Q** command would be:

Q160,24 ↵

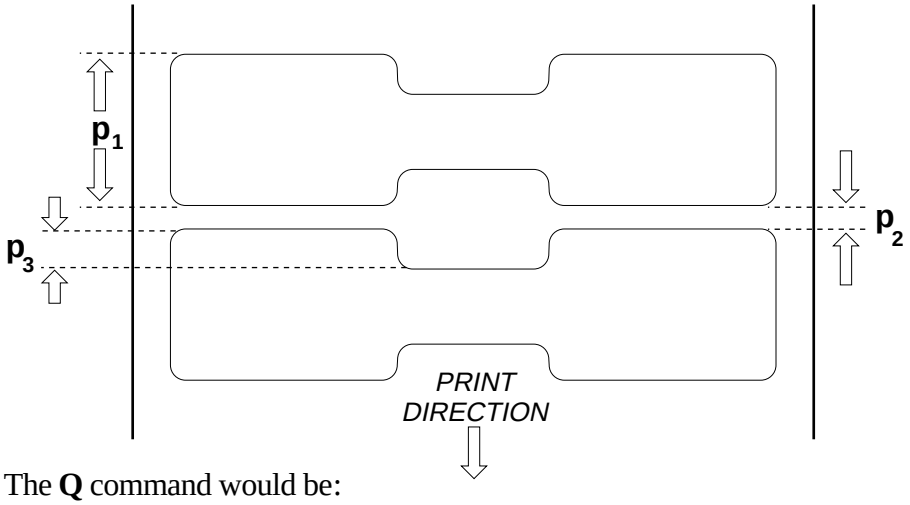
Continued!

Q COMMAND – SET FORM LENGTH (LSS), cont'd.

Examples, cont'd.

Butterfly label:

p_1 = 12.5 mm (100 dots)
p_2 = 3.0 mm (24 dots)
p_3 = 3.0 mm (24 dots)



The **Q** command would be:

Q100,24+24 ↵

Q COMMAND – SET FORM LENGTH (Black Mark)

Description

This command is used switch from label stop sensor (LSS) to the optional black mark sensor (BMS), and to specify the location and height of the black marks on the back of the paper.

Syntax

$Qp_1Bp_2[\pm p_3]$

Parameters

p_1	*Distance between black marks measured in dots*
B	*Disables LSS, enables BMS*
p_2	*Height of black mark measured in dots*
$\pm p_3$	*Optional offset length measured in dots*

Remarks

As standard, all *EasyCoder 91* printers have a label stop sensor designed to detect the top of each label or tag. It can be supplemented with an optional black mark sensor (factory installed option only) that determines the top of each label or tag by sensing a preprinted black mark on the back of the paper.

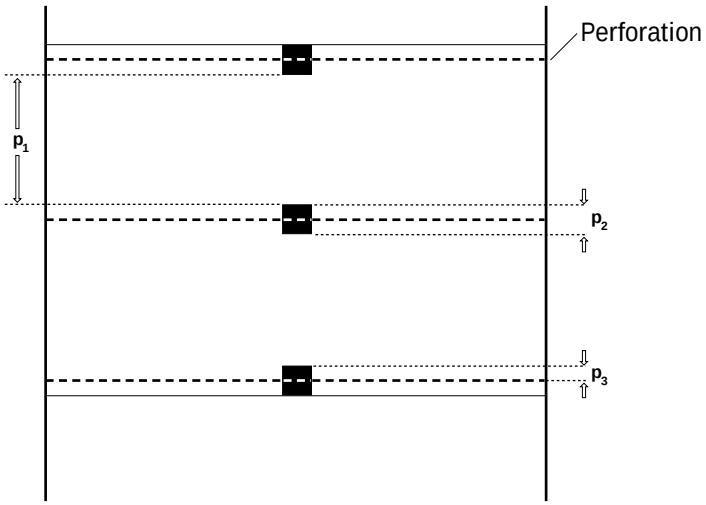
The black marks should be centre-aligned on the paper and have the following dimensions:

Maximum height ..... : 15 mm (0.59")
Minimum height ..... : 3 mm (0.12")
Recommended height ..... : 5 mm (0.20")
Recommended width ..... : ≥ 10 mm (0.39")

Examples

Example of a tag, where the black marks are printed on the perforation:

$\mathbf{p_1}$ = 31.0 mm (248 dots)
$\mathbf{p_2}$ = 7.0 mm (56 dots)
$\mathbf{p_3}$ = 0.5 mm (4 dots)



The **Q** command would be:

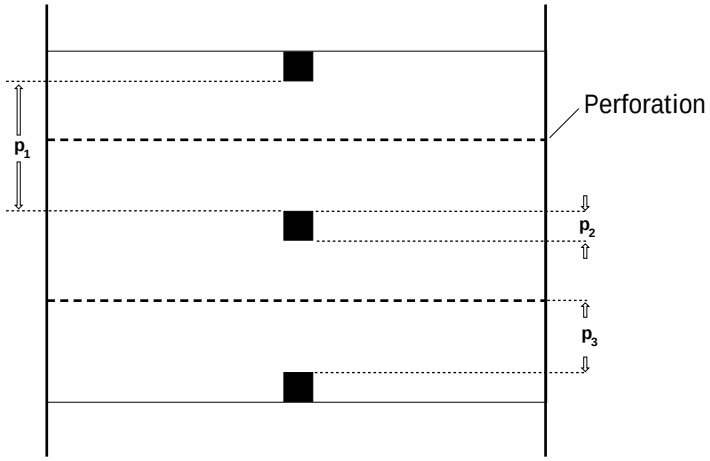
```
Q248,B56+4 ↵
```

Continued!

Q COMMAND – SET FORM LENGTH (Black Mark), cont'd.

Examples, cont'd.

Example of a tag, where the black marks are printed between the perforations:
$\mathbf{p_1}$ = 31.0 mm (248 dots)
$\mathbf{p_2}$ = 7.0 mm (56 dots)
$\mathbf{p_3}$ = 17 mm (136 dots)



The **Q** command would be:

Q248,B56-136 ↵

q COMMAND – SET LABEL WIDTH

Description

This command is used to set the label width when using less than full width labels.

Syntax

qp_1

Parameters

p_1 Width of label measured in dots (default 832)

Remarks

The **q** command will cause the image buffer (see **M** command) to be formatted to match the label width, i.e. width is traded off for increased length within the same memory size. This allows printing long narrow labels with a minimum of memory.

The **q**-value will automatically be rounded off to the closest multiple of 8, e.g. if **q** is entered as 500, the actual **q**-value will be 496 (62 × 8).

The **q** command will also automatically set the margins according to the following rule:
(832 – label width in dots)/2 (centre aligned)
There are 8 dots per mm and 203.2 dots per inch.

Important!
*If an **R** command (Reference Point) is sent after a **q** command, the image buffer will be automatically reformatted to match the width of the printhead (832 dots) and the margins will be reset accordingly.*

Example

q416 ↵ *:Sets label width to 416 dots (52 mm/2.05")*

R COMMAND – SET REFERENCE POINT

Description

This command is used to move the reference point for the X and Y axes. All horizontal and vertical measurements in other commands use the setting for **R** as the origin for measurements.

Syntax

Rp_1,p_2

Parameters

p_1 *Horizontal (left) margin measured in dots (default 000)*
p_2 *Vertical (top) margin measured in dots (default 000)*

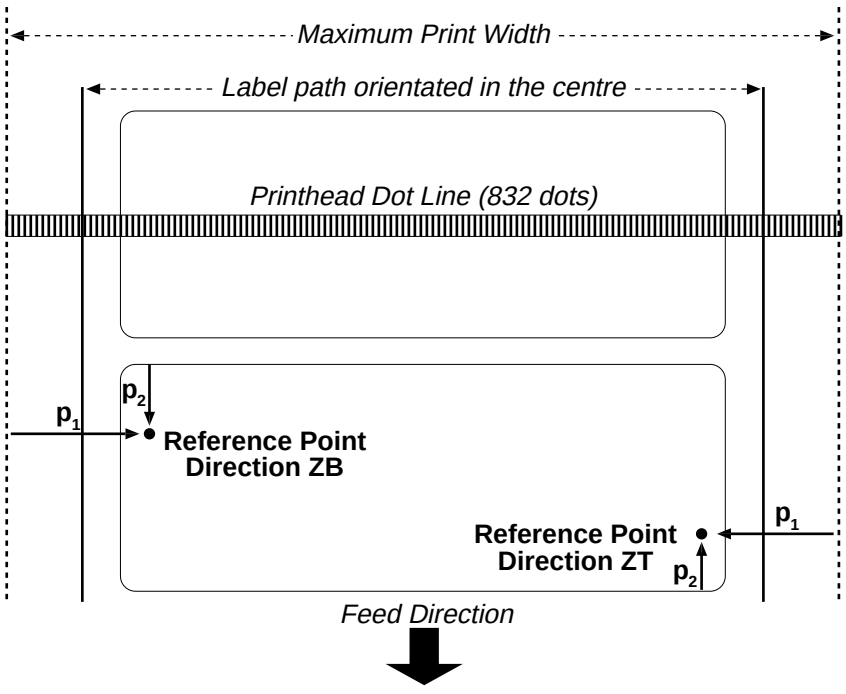
Remarks

The reference point command is used to establish top and left margins to prevent printing off the edge of the label. A minimum margin of 1 mm should be used on all sides of the label.

Warning!
Repeated printing off the edge of the label can cause excessive printhead wear.

Note that for narrow labels, the **R** command could be substituted by a **q** command, which has the benefit of making better use of a limited image buffer. However, the **q** command cannot affect the vertical margin. Any **R** command after a **q** command will revoke the latter.

The print direction commands **ZB** and **ZT** affect the location of the reference point, as illustrated below:



Example

`R50,100` ↵ *:Creates a 50 dot left margin and a 100 dot top margin.*

S COMMAND – SPEED SELECT

Description

This command is used to select the label speed while printing.

Syntax

Sp_1

Parameters

p_1 *Speed select value:*

0 25 mm/sec. (1"/sec.)
1 37 mm/sec. (1.5"/sec.)
2 50 mm/sec. (2"/sec.) (default)

Remarks

Changing the print speed will affect the blackness of the printout, which may have to be adjusted by means of a **D** command.

Example

S0 ↵ *:Sets the print speed to 25 mm/sec (1"/sec.).*

TD COMMAND – DEFINE DATE LAYOUT

Description

This command is used to define the date format when printing.

Syntax

TDp$_1$[/p2/p3]

Parameters

p_1–p_3 *The parameters describe the format of the date display. At least one parameter must be supplied. Each parameter can be any of the acceptable values listed below:*

y2 Year displayed as 2 digits, e.g. 96
y4 Year displayed as 4 digits, e.g. 1996
me Month displayed as a 3-letter English abbreviation, e.g. JAN, FEB, MAR, APR, MAY etc.
mn Month displayed as 2 digits, e.g. 01
dd Day displayed as 2 digits, e.g. 15

/ *Represents an optional separator character, which can be any character in the range between ASCII 32 dec. and ASCII 63 dec. The separator is printed between the results of each of the supplied parameters.*

Remarks

This command works only if the printer is fitted with a Memory Cartridge containing an optional real-time clock circuit (RTC).

Examples

If the current date is January 15, 1996:

```
TDy2/me/dd ↵    :Prints as 96/JAN/15
TDdd-me-y4 ↵    :Prints as 15-JAN-1996
TDdd,mn,y4 ↵    :Prints as 15,01,1996
TDy4-mn-dd ↵    :Prints as 1996-01-15
```

TS COMMAND – SET REAL TIME CLOCK

Description

This command is used to set the time and date in the printer's optional real-time clock circuit.

Syntax

TSp_1,p_2,p_3,p_4,p_5,p_6

Parameters

p_1	*Month (01–12)*
p_2	*Day (01–31)*
p_3	*Year, two last digits (e.g. 96)*
p_4	*Hour in 24 hour format (00–23)*
p_5	*Minutes (00-59)*
p_6	*Seconds (00-59)*

Remarks

This command works only if the printer is fitted with a Memory Cartridge containing an optional real-time clock circuit (RTC).

Example

`TS01,15,96,12,45,23`↵ *:Sets the date to January 15, 1996 and the time to 12:45:23 p.m.*

TT COMMAND – DEFINE TIME LAYOUT

Description

This command is used to define the time format when printing.

Syntax

TTp_1[/p_2/p_3][+]

Parameters

p_1–p_3 *These parameters describe the format of the time display. At least one parameter must be supplied. Each parameter can be any of the acceptable values listed below:*

h Hours displayed as 2 digits, e.g. 12
m Minutes displayed as 2 digits, e.g. 15
s Seconds displayed as 2 digits, e.g. 00

/ *Represents an optional separator character, which can be any character in the range between ASCII 32 dec. and ASCII 63 dec. The separator is printed between the results of each of the supplied parameters.*

+ *Optionally selects 12-hour mode, where the time will appended with an "AM" or "PM" indicator. If there is no trailing + sign in command, 24-hour mode will be selected.*

Remarks

This command works only if the printer is fitted with a Memory Cartridge containing an optional real-time clock circuit (RTC).

Example

If the current time is 1:25:00 PM:

TTh:m:s+ ↵ *:Prints as 01:25:00 PM*
TTh,m ↵ *:Prints as 13,25*
TTh+ ↵ *:Prints as 01 PM*

U COMMAND – PRINT CONFIGURATION (General)

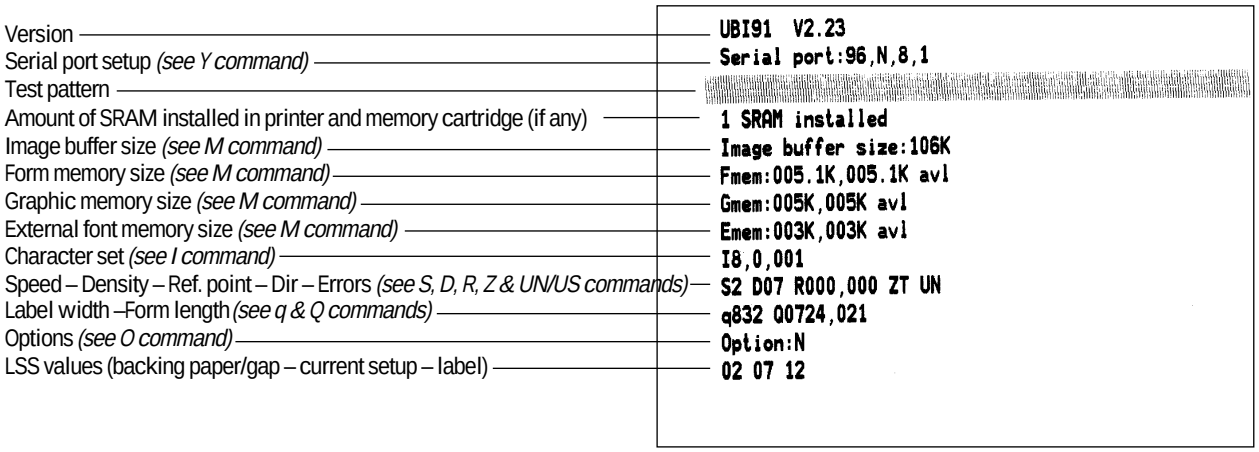
Description This command is used to print the current printer configuration.

Syntax

U

Remarks This command produces a single label identical to the one printed in the Test Mode (see page 32), but without entering the Dump Mode.

Example **U** ↵ *:Produces e.g. the following label*



Note:
If a real-time clock circuit is fitted in an inserted optional memory cartridge, the present time and date according to the clock circuit will also be printed at the bottom of the label.

UF COMMAND – FORM INFORMATION INQUIRY

Description

This command will cause the printer to send information about forms currently stored in the printer back to the host.

Syntax

UF

Remarks

The printer will send the number of forms stored and the name of each form to the host through the serial RS 232C port.

The **UF** command will be executed directly, without appending any Linefeed.

Example

UF *:Returns number of forms and all form names, e.g.:*

UF006
TEST1
TEST2
TEST3
TEST4
TEST5
TEST6

UG COMMAND – GRAPHICS INFORMATION INQUIRY

Description

This command will cause the printer to send information about graphics currently stored in the printer back to the host.

Syntax

UG

Remarks

The printer will send the number of graphics and the name of each graphic to the host through the serial RS 232C port.

The **UG** command will be executed directly, without appending any Linefeed.

Example

```
UG          :Returns number of graphics and all graphic names, e.g.:

UG001
UBILOGO
```

UI COMMAND – ENABLE PROMPTS/CODEPAGE INQUIRY

Description

This command will cause the printer to enable prompts to be sent to the host and to send the currently selected code page to the host through the serial RS 232C port.

Syntax

UI

The printer will send information on the currently selected code page back to the host in the following format:

UIp_1,p_2,p_3

Parameters

p_1 *Number of data bits*
p_2 *Code page*
p_3 *Country code*

Remarks

The KDU (Keyboard Display Unit, see Appendix 4) automatically sends this command each time power is applied. The **UI** command is disabled by removing power from the printer for 60 seconds.

Example

`UI` ↵ *:Enables prompts from host and returns current code page, e.g.:*

`UI80,001`

See Also:

I and **U** commands

UM COMMAND – CODEPAGE & MEMORY INQUIRY

Description

This command will cause the printer to send the currently selected code page and memory status to the host through the serial RS 232C port.

Syntax

UM

The printer will send information on the currently selected code page and memory status back to the host in the following format:

UM p_1,p_2,p_3,p_4,p_5,p_6,p_7,UI p_8,p_9,p_{10}

Parameters

p_1	*Image buffer size in Kbytes*
p_2	*Form memory allocation size in Kbytes*
p_3	*Form memory free in Kbytes*
p_4	*Graphic memory allocation size in Kbytes*
p_5	*Graphic memory free in Kbytes*
p_6	*External font memory allocation size in Kbytes*
p_7	*External font memory free in Kbytes*
p_8	*Number of data bits*
p_9	*Code page*
p_{10}	*Country code*

Example

UM ↵ *:Returns memory status and current code page, e.g.:*

```
UM106,005.1,005.0,005,005,003,003
                                  UI80,001
```

See Also:

I, **M**, **U**, **UI**, and **UP** commands.

UN COMMAND – DISABLE ERROR REPORTING

Description This command is used to disable error reporting.

Syntax

UN

Remarks Cancels **US** command.

Example **UN** ↵ *:Disables error reporting*

UP COMMAND – CODEPAGE & MEMORY INQUIRY/PRINT

Description

This command will cause the printer to print and send the currently selected code page and memory status to the host through the serial RS 232C port.

Syntax

```
UP
```

The printer will:
- Send information on the currently selected code page and memory status back to the host (same as **UM** command)
- Print the current printer configuration (same as **U** command).

The format of the data sent to the host is as follows:

```
UM p1,p2,p3,p4,p5,p6,p7,UI p8,p9,p10
```

Parameters

p_1	*Image buffer size in Kbytes*
p_2	*Form memory allocation size in Kbytes*
p_3	*Form memory free in Kbytes*
p_4	*Graphic memory allocation size in Kbytes*
p_5	*Graphic memory free in Kbytes*
p_6	*External font memory allocation size in Kbytes*
p_7	*External font memory free in Kbytes*
p_8	*Number of data bits*
p_9	*Code page*
p_{10}	*Country code*

Example

UP ↵ *:Returns memory status and current code page and prints configuration on label.*

See Also:

I, **M**, **U**, **UI**, and **UM** commands.

US COMMAND – ENABLE ERROR REPORTING

Description

This command is used to enable the printer's status reporting feature.

Syntax

US

Remarks

Serial Port:
If an error occurs while using the serial port, the printer will send a NAK (ASCII 21 dec.), followed by the error number, back to the computer. If no error occur, the printer will echo ACK (ASCII 06 dec.) after each **P** (print) command.

If out-of-paper or out-of-ribbon occurs, the printer will send, through the serial port, a "**-07**" and "**Pnnn**" where **nnn** is the number of labels remaining to print.

Parallel Port:
While using the parallel port, the printer will print the error number and the control lamp will go orange (error).

The default setting is off (also see **UN**).

Error Messages

Message	Meaning
ERR01	Syntax Error
ERR02	Object exceeds image buffer border
ERR03	Data length error (e.g. EAN 13 is 12 or 13 bytes only)
ERR04	Insufficient memory to store forms or graphics
ERR05	Memory configuration error
ERR06	RS 232C error
ERR07	Out of paper and/or ribbon
ERR08	Form or PCX name duplicate
ERR09	Form or PCX not found
ERR16	No form was retrieved before "**?** ↵" was entered.
ERR50	Does not fit in area specified
ERR51	Data length too long

HINT!
Tap the Feed key three times to resume printing after an error.

Example

US ↵ *:Enables error reporting*

V COMMAND – DEFINE VARIABLE

Description

This command is used to define variable data fields for use in stored forms.

Syntax

Vp_1,p_2,p_3,"[-][- -]PROMPT"

Parameters

p_1 *Variable reference number (00–99).*
A maximum total of 1500 bytes of data for all variables is allowed.

p_2 *Maximum number of digits for the variable (1–99).*
A maximum total of 1500 bytes of data for all variables is allowed.

p_3 *Field justification:*
L Left justification
R Right justification
C Centre justification
N No justification

[-] *A single leading minus sign in the prompt field will cause the prompt to be sent one time only after the form is retrieved (Keyboard Display Unit only, see Appendix 4).*

[- -] *A double leading minus sign in the prompt field will cause the prompt to be suppressed (Keyboard Display Unit only, see Appendix 4).*

PROMPT *An ASCII text field that will be transmitted to the host via the serial interface each time this command is executed. This prompt requests the operator to enter the value for the variable.*

Remarks

This command is used in **forms** that require unique data on each label. When initializing variables, they must be defined in order (V00, V01, V02 etc.) ***immediately*** after the **FS** command.

The field justification parameter affects the way the variable will be printed. When left, right, or centre justification are selected, the counter value will be printed left, right or centre justified in an area with a width defined by the $\mathbf{p_2}$ parameter. If the number of digits in the counter value is less than the number of digits defined by $\mathbf{p_2}$, the area will be padded with space characters.

If no justification is selected, the field will adjust to fit the actual length of the data and will not exceed the set maximum field length, which may be useful when using a counter as input data to a bar code.

To print the contents of a variable, the number of the variable must be included in the "DATA" field of the **A** (Print Text) or **B** (Print Bar Code) commands.

Continued

V COMMAND – DEFINE VARIABLE, cont'd.

Example

This example shows how the field justification works in variable fields:

```
FK"TEST7" ↵
FR"TEST7" ↵
V00,10,L,"Variable 00" ↵
V02,10,R,"Variable 00" ↵
V03,10,C,"Variable 00" ↵
V04,10,N,"Variable 00" ↵
A50,50,0,3,1,1,N,"TEXT"V00":Left justified" ↵
A50,100,0,3,1,1,N,"TEXT"V01":Right justified" ↵
A50,150,0,3,1,1,N,"TEXT"V02":Centre justified" ↵
A50,200,0,3,1,1,N,"TEXT"V03":No justification" ↵
FE ↵
```

*Refer to the **?** Command on page 122 for continuation of this example!*

W COMMAND – WINDOWS MODE

Description

This command is used to enable/disable the Windows command mode.

Syntax

Wp_1

Parameters

p_1 *Windows Mode enable/disable:*
Y Enables Windows Mode
N Disables Windows Mode (default)

Remarks

When enabled, the printer will accept Windows mode escape sequences to print data. When disabled, escape sequences will be ignored.

The Windows mode escape sequences are only used by the Windows Printer Driver. When working with a main frame or other non-Windows host, this mode can be disabled to prevent erratic operation.

Examples

```
WY ↵          :Enables Windows Mode
WN ↵          :Disables Windows Mode
```

X COMMAND – DRAW BOX

Description

This command is used to draw a box shape.

Syntax

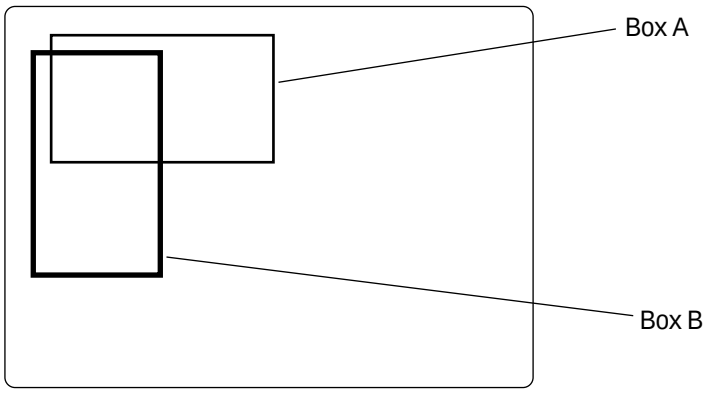
Xp_1,p_2,p_3,p_4,p_5

Parameters

p_1	*Horizontal start position (X) in dots*
p_2	*Vertical start position (Y) in dots*
p_3	*Line thickness in dots*
p_4	*Horizontal end position (X) in dots*
p_5	*Vertical end position (X) in dots*

Example

```
N ↵                          :Clears image buffer
X50,200,5,400,20 ↵           :Prints box A
X200,50,10,20,400 ↵          :Prints box B
P1 ↵                         :Prints a label
```



Y COMMAND – SERIAL PORT SETUP

Description

This command is used to establish the serial port communication parameters.

Syntax

Yp_1,p_2,p_3,p_4

Parameters

p_1 *Baud rate:*
19 19,200 baud
96 9,600 baud
48 4,800 baud
24 2,400 baud
12 1,200 baud

p_2 *Parity:*
O Odd (O is uppercase o character; ASCII 79 dec.)
E Even
N None

p_3 *Number of data bits:*
7 7 data bits
8 8 data bits

p_4 *Number of stop bits:*
1 1 stop bit
2 2 stop bits

Remarks

The *EasyCoder 91* communicates either via the Centronics parallel port or the RS 232C serial port. After receiving this command, the printer will automatically reset its communication on the serial communication port.

By default, the printer is set for 9600 baud, no parity, 8 data bits, 1 stop bit.

If the current communication setup is not known, it can be checked by printing a test label (see page 32).

Example

`Y19,0,7,1` ↵ *:Sets 19,200 baud, odd parity, 7 data bits, 1 stop bit*

Z COMMAND – PRINT DIRECTION

Description

This command is used to select the print orientation.

Syntax

Zp_1

Parameters

p_1 *Print orientation:*

T Start printing from the top of the label (default)

B Start printing from the bottom of the label

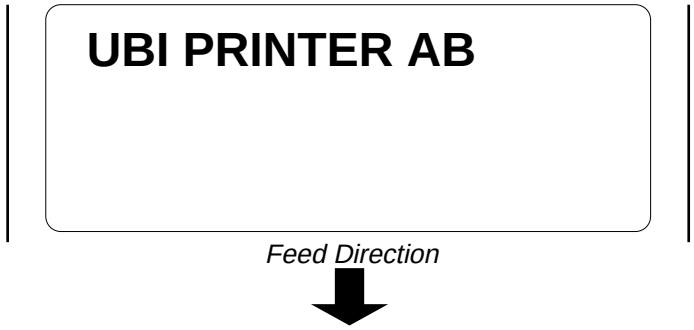
Remarks

This command affects the complete print image, including text, bar codes, graphics, lines, and boxes, as well as the location of the reference point (see **R** command).

Note that printing a test label in the Test Mode, or by means of a **U** or **UP** command, will reset the print direction to default, i.e. **ZT**.

ZT Command:

ZB Command:



Example

ZB ↵ *:Starts printing from the bottom of the label*

? COMMAND – DOWNLOAD VARIABLES

Description

This command is used to signal to the printer that the data following are variable or counter values. It also makes the printer read the optional real-time clock circuit.

Syntax

```
?
```

Remarks

This command is used by the host system to send data representing variables and/or counters to the printer after a stored for containing variables and/or counters has been retrieved. The amount of data following the question mark line must match **exactly** the total number and order of variables and/or counters for that specific form.

If the form contains time and/or date fields, they will only be printed if the **FR** (form retrieve command) is followed by a **?** command line. The **?** command allows the printer to read its optional real-time clock circuit.

Important!
If the ? command is omitted, no variables, counter values, time fields or date field will be printed.

Example

```
FR"TEST7" ↵          :Retrieves the form "TEST7", see page 117
? ↵                  :Variables follow
12345 ↵              :Variable 00 entered
abcde ↵              :Variable 01 entered
ABCDE ↵              :Variable 02 entered
99999 ↵              :Variable 03 entered
P1 ↵                 :Prints one label
```

1: INTERFACES

Parallel Interface

Handshake:
DSTB to printer and BUSY to host.

Interface cable

Computer end: Depends on type of host computer.
IBM-PC: DB25 male connector.

Printer end: 36-p male Centronics connector.

Pin	Function	Transmitter
1	-Strobe	Host
2–9	Data 0–7	Host
10	Busy	Printer
11	Busy	Printer
12	Paper empty	Printer
13	Select	Printer
14–15	N/C	
16	Signal ground	
17	Chassis ground	
18	N/C	
19–30	Signal ground	
31	-Init	
32	-Fault	Printer
33	Signal ground	
34–36	N/C	

Serial Interface (RS 232C)

Protocol (default):
9600 baud, No parity, 8 data bits, 1 stop bit
XON/XOFF, DSR/CTS

To change serial settings, use the **Y** command.

Interface cable

Computer end: Depends on type of host computer.
IBM-XT & PS-2: DB25 female connector.
IBM-AT: DB9 female connector

Printer end: DB9 male connector.

Host	9-pin	25-pin	9-pin	Printer
			1	+5V
RXD	2	3	2	TXD
TXD	3	2	3	RXD
DTR	4	20	4	N/C
GND	5	7	5	GND
DSR	6	6	6	RDY
RTS	7	4	7	N/C
CTS	8	5	8	RDY
			9	N/C

2: CONVERSION CHART

Dots to mm & inches			Mm and inches to dots		
Dots	**mm**	**Inches**	**mm**	**Inches**	**Dots**
1	0.13	0.005	1	0.039	8
2	0.25	0.010	2	0.079	16
3	0.38	0.015	3	0.118	24
4	0.50	0.020	4	0.157	32
5	0.63	0.025	5	0.197	40
6	0.75	0.030	6	0.236	48
7	0.88	0.034	7	0.276	56
8	1.00	0.039	8	0.315	64
9	1.13	0.044	9	0.354	72
10	1.25	0.049	10	0.394	80
20	2.50	0.099	20	0.787	160
30	3.75	0.124	30	1.181	240
40	5.00	0.197	40	1.575	320
50	6.26	0.246	50	1.969	400
60	7.51	0.296	60	2.362	480
70	8.76	0.345	70	2.756	560
80	10.01	0.394	80	3.150	640
90	11.26	0.443	90	3.543	720
100	12.51	0.493	100	3.937	800
200	25.02	0.985	200	7.874	1600
300	37.54	1.478			
400	50.05	1.970			
500	62.56	2.463			
600	75.07	2.956			
700	87.59	3.448			
800	100.10	3.941			
900	112.61	4.433			
1000	125.12	4.926			
2000	250.25	9.825			

3: FONTS, CODE PAGES & CHARACTER SETS

Fonts, Code Pages and Character Sets

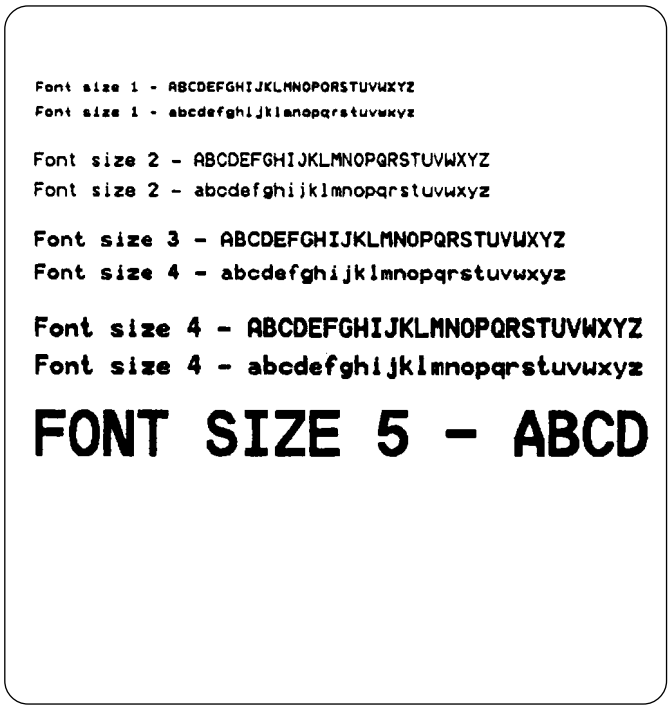
Resident Fonts

The *EasyCoder 91* printer supports 160 different characters for font size 1–4 and 80 characters for font size 5.

Note:
All fonts are Non proportional. The ASCII value of the different characters is determined by the ***I*** *command setting.*

Font	Size in dots	Size of characters
1	8 x 12 dots	20.3 characters/inch (cpi), 6 points
2	10 x 16 dots	16.9 cpi, 7 points
3	12 x 20 dots	14.5 cpi, 10 points
4	14 x 24 dots	12.7 cpi, 12 points
5	32 x 48 dots	5.6 cpi, 24 points

Font Sizes 1 – 5



3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 1–4 (8 bit);
Code Page 437

```
  0 -
 16 -          ¶ §
 32 -    ! " # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [ \ ] ^ _
 96 - ` a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
128 - Ç ü é â ä à å ç ê ë è ï î ì Ä Å
144 - É æ Æ ô ö ò û ù ÿ Ö Ü ¢ £     ƒ
160 - á í ó ú ñ Ñ ª º ¿       ½ ¼ ¡
176 -
192 -
208 -
224 -   ß           µ
240 -                   °
```

Size 1–4 (8 bit);
Code Page 850

```
  0 -
 16 -          ¶ §
 32 -    ! " # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [ \ ] ^ _
 96 - ` a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
128 - Ç ü é â ä à å ç ê ë è ï î ì Ä Å
144 - É æ Æ ô ö ò û ù ÿ Ö Ü ø £ Ø   ƒ
160 - á í ó ú ñ Ñ ª º ¿       ½ ¼ ¡
176 -             Á Â À           ¢
192 -               ã Ã
208 -     ð Ð Ê Ë È   ı Í Î Ï         ì
224 - ó ß Ô Ò õ Õ µ     Ú   Ù
240 -     = ¾ ¶ §       °
```

Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 1–4 (8 bit);
Code Page 852

```
  0 -
 16 -          ¶ §
 32 -    !   # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [   ] ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
128 - Ç ü é â ä     ç   ë     î   Ä
144 - É     ô ö         Ö Ü
160 - á í ó ú
176 -             Á Â
192 -
208 -         Ë     Í Î
224 - ó ß Ô       .       Ú
240 -             §     °
```

Size 1–4 (8 bit);
Code Page 860

```
  0 -
 16 -          ¶ §
 32 -    !   # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [   ] ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
128 - Ç ü é â ã à Á ç ê Ê è Í Ô ì Ã Â
144 - É À È ô õ ò Ú ù Ì Õ Ü ¢ £ Ù   Ó
160 - á í ó ú ñ Ñ ª º ¿ Ò   ½ ¼
176 -
192 -
208 -
224 -   ß           µ
240 -                   °
```

Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 1–4 (8 bit);
Code Page 863

```
  0 -
 16 -           ¶ §
 32 -    !    # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [   ] ^ _
 96 - ` a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
128 - Ç ü é â Â à ¶ ç ê ë è ï î = À §
144 - É È Ê ô Ë Ï û ù   Ô Ü ¢ £ Ù   ƒ
160 -      ó ú           ¨     ½ ¼ ¾
176 -
192 -
208 -
224 -    β           µ
240 -                    °
```

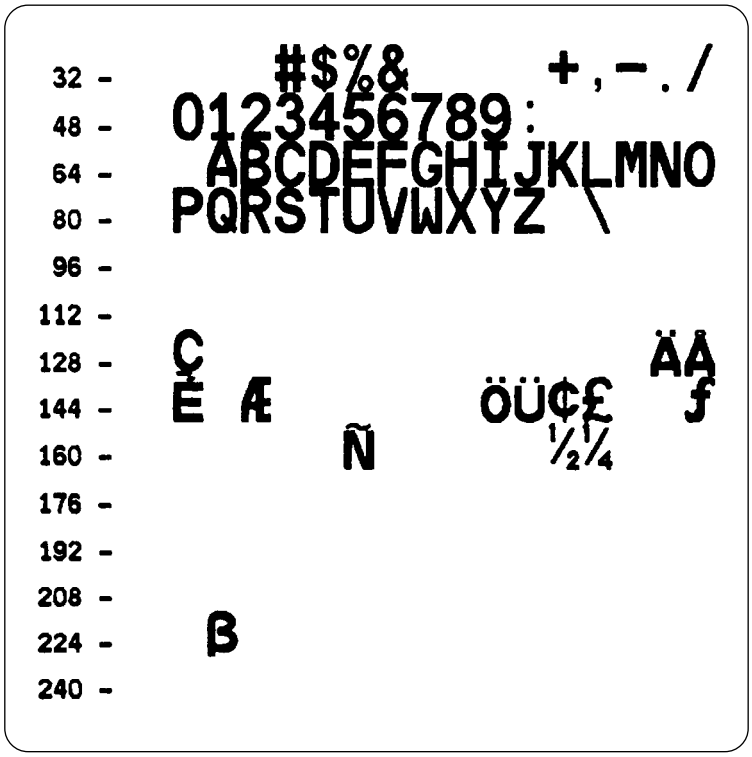
Size 1–4 (8 bit);
Code Page 865

```
  0 -
 16 -           ¶ §
 32 -    !    # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [   ] ^ _
 96 - ` a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
128 - Ç ü é â ä à å ç ê ë è ï î ì Ä Å
144 - É æ Æ ô ö ò û ù ÿ Ö Ü ø £ Ø   ƒ
160 - á í ó ú ñ Ñ ª º ¿     ½ ¼
176 -
192 -
208 -
224 -    β           µ
240 -                    °
```

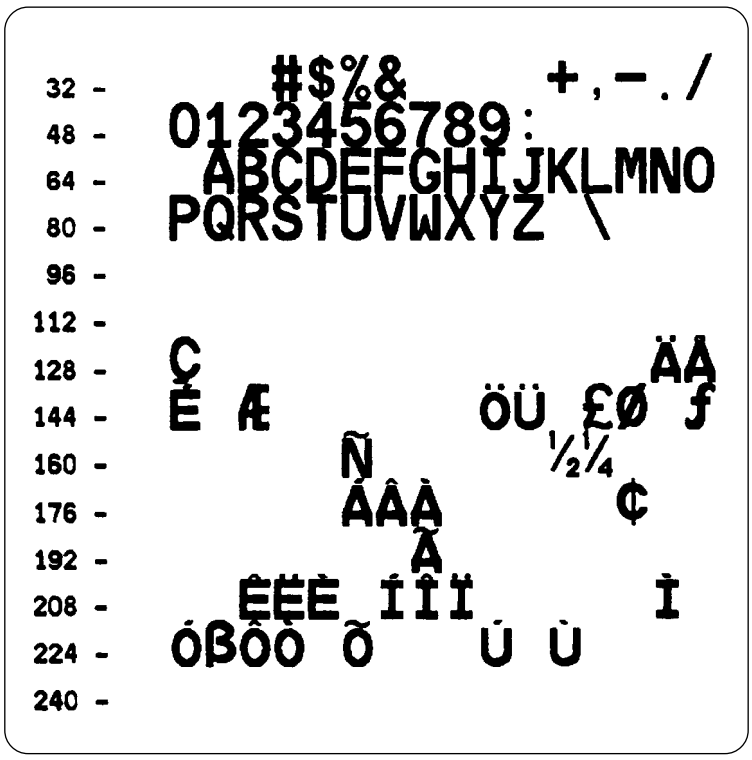
Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 5 (8 bit);
Code Page 437



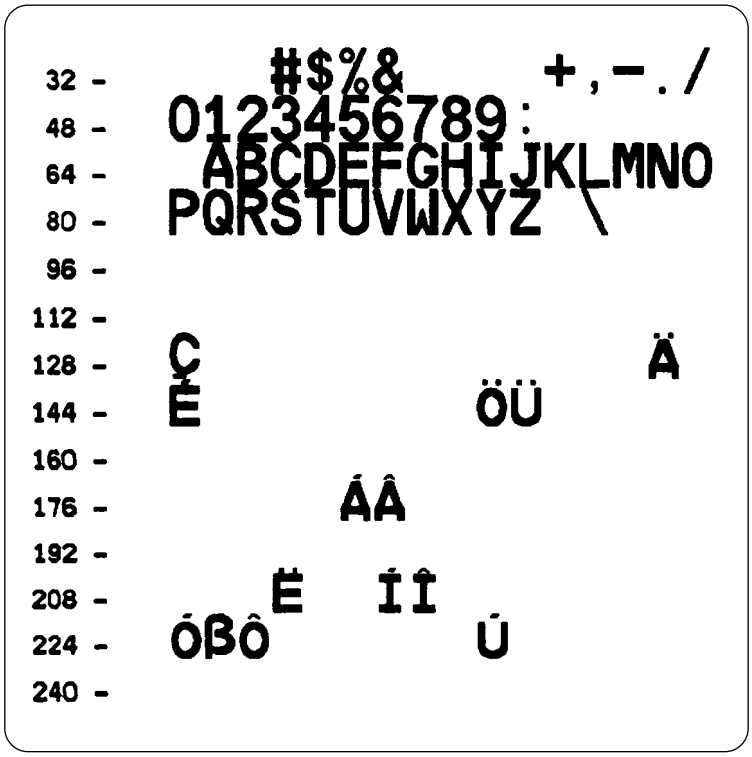
Size 5 (8 bit);
Code Page 850



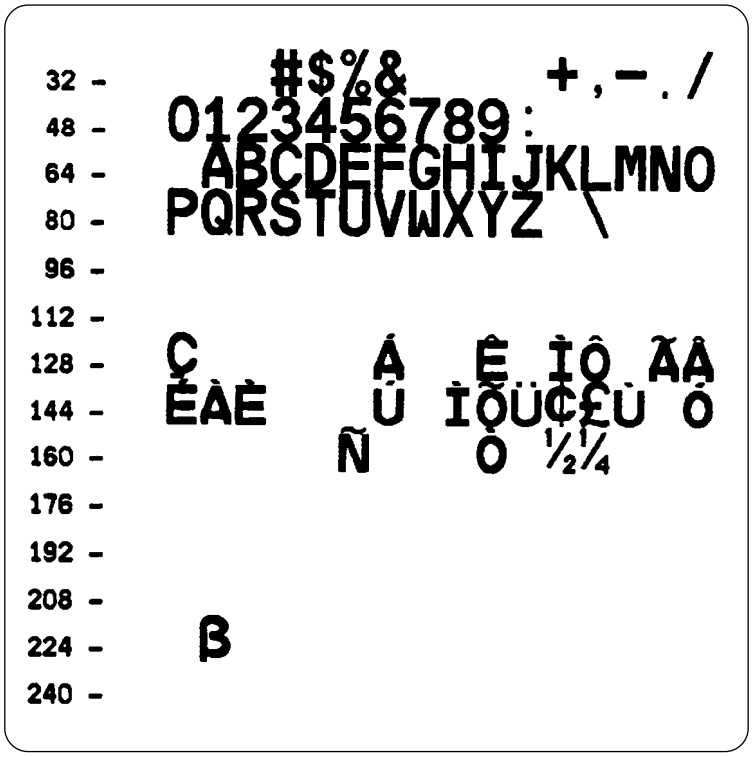
Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 5 (8 bit);
Code Page 852



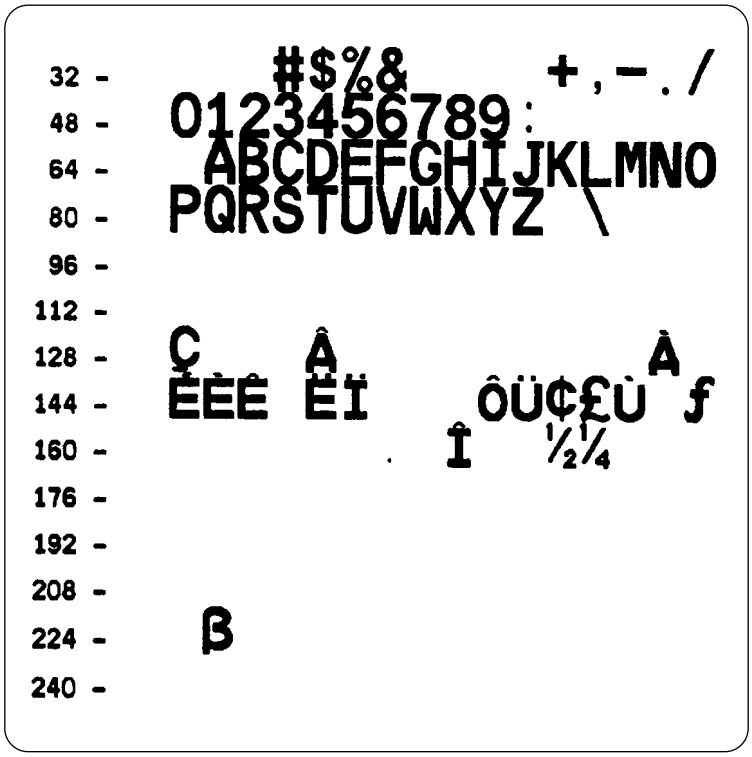
Size 5 (8 bit);
Code Page 860



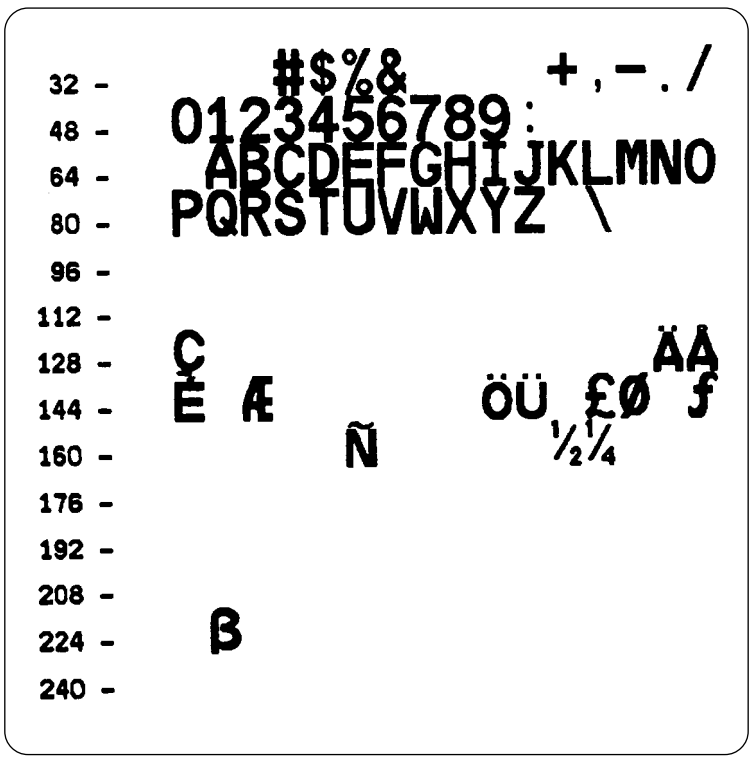
Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 5 (8 bit);
Code Page 863



Size 5 (8 bit);
Code Page 865



Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 1 – 4 (7 bit); USA

```
  0 -
 16 -          ¶ §
 32 -   !   # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [ \ ] ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
```

Size 1 – 4 (7 bit); British

```
  0 -
 16 -          ¶ §
 32 -   !   £ $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z [ \ ] ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z
```

Size 1 – 4 (7 bit); German

```
  0 -
 16 -          ¶ §
 32 -   !   # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - § A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z Ä Ö Ü ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z ä ö ü ß
```

Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 1 – 4 (7 bit); French

```
  0 -
 16 -          ¶ §
 32 -   !   £ $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - à A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z ° ç § ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z é ù è ¨
```

Size 1 – 4 (7 bit); Danish

```
  0 -
 16 -          ¶ §
 32 -   !   ¤ $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - @ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z Æ Ø Å Ü _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z æ ø å ü
```

Size 1 – 4 (7 bit); Italian

```
  0 -
 16 -          ¶ §
 32 -   !   £ $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - § A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z ° ç é ^ _
 96 - ù a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z à ò è ì
```

Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

Size 1 – 4 (7 bit); Spanish

```
  0 -
 16 -          ¶ §
 32 -    !   ! $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - ¡ A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z Ñ ñ ¿ ü _
 96 - á a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z é í ó ú
```

Size 1 – 4 (7 bit); Swedish

```
  0 -
 16 -          ¶ §
 32 -    !   £ $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - § A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z ä ç è ^ _
 96 - ' a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z ä ö ü é
```

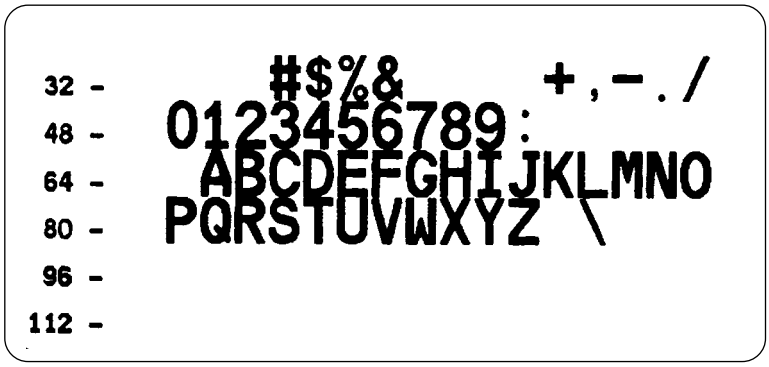
Size 1 – 4 (7 bit); Swiss

```
  0 -
 16 -          ¶ §
 32 -    !   # $ % & ' ( ) * + , - . /
 48 - 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
 64 - É A B C D E F G H I J K L M N O
 80 - P Q R S T U V W X Y Z ä ö Å Ü _
 96 - é a b c d e f g h i j k l m n o
112 - p q r s t u v w x y z ä ö å ü
```

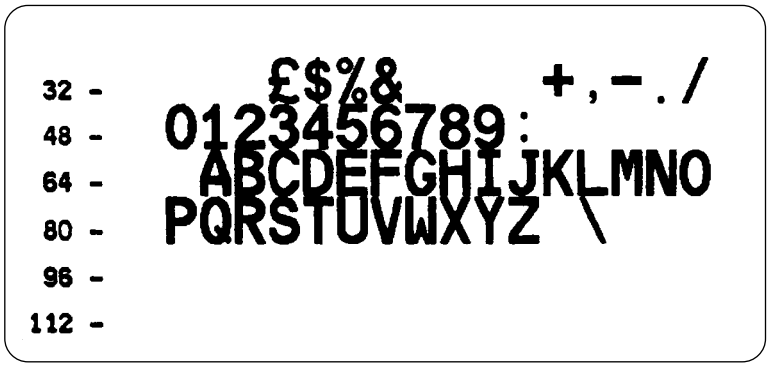
Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

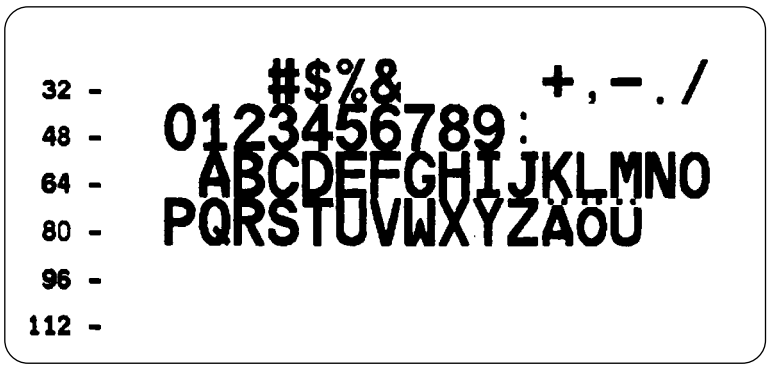
Size 5 (7 bit); USA



Size 5 (7 bit); British



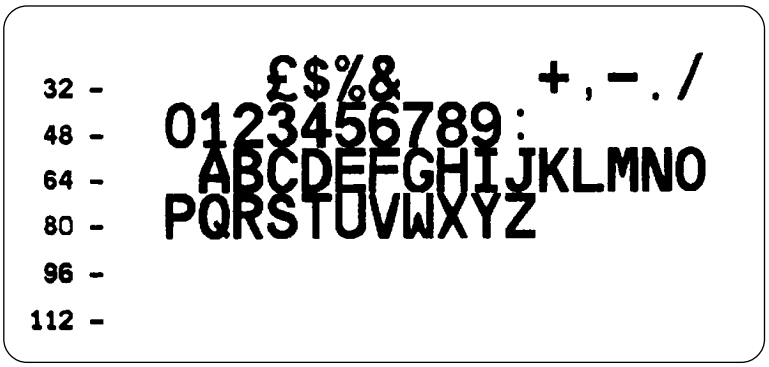
Size 5 (7 bit); German



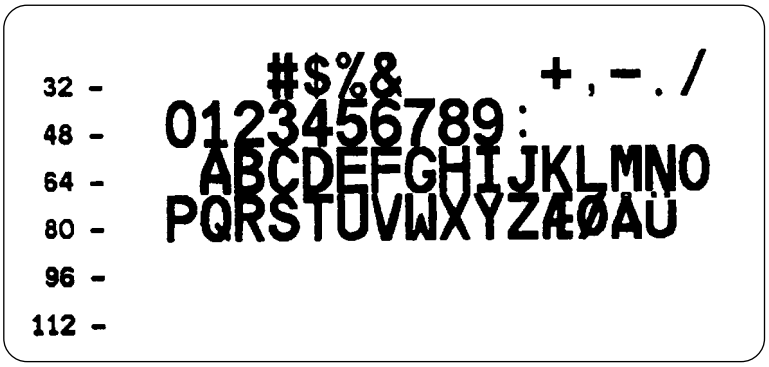
Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

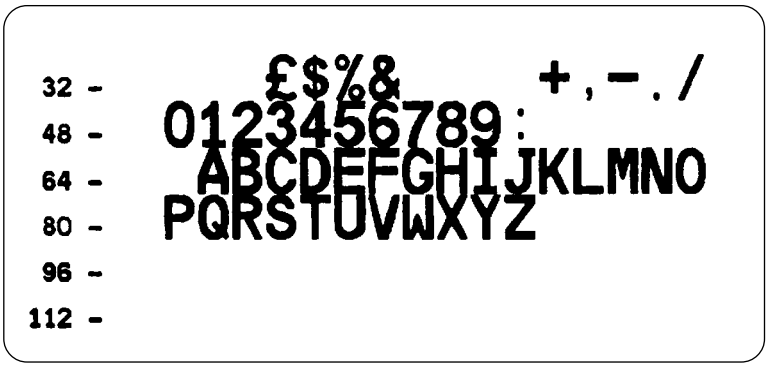
Size 5 (7 bit); French



Size 5 (7 bit); Danish



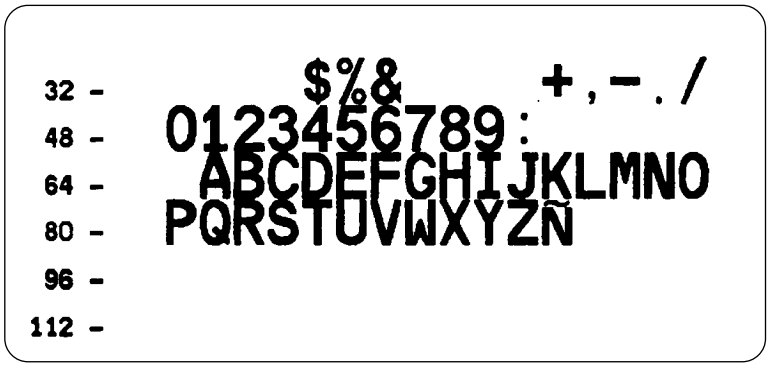
Size 5 (7 bit); Italian



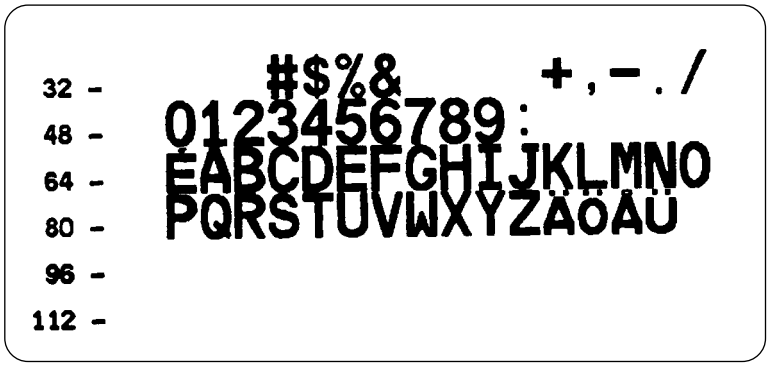
Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

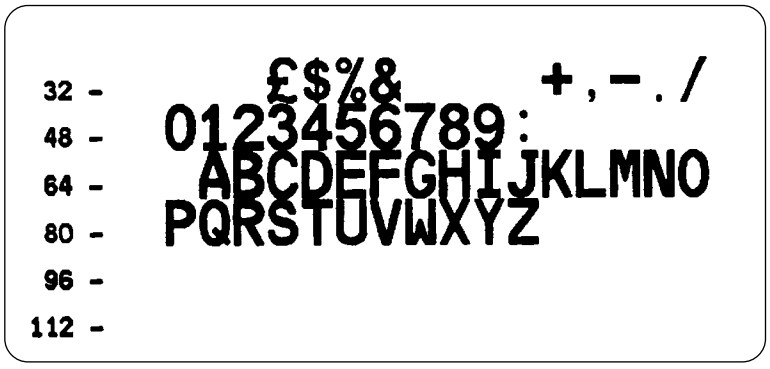
Size 5 (7 bit); Spanish



Size 5 (7 bit); Swedish



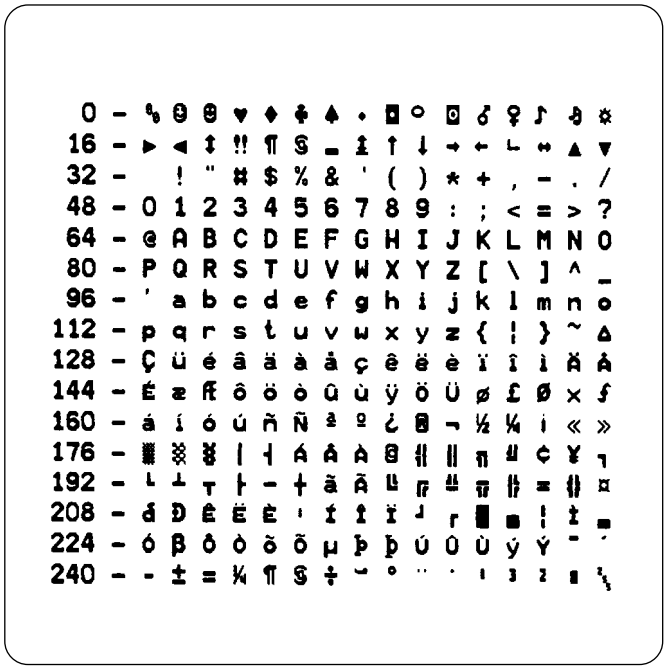
Size 5 (7 bit); Swiss



Continued!

3: FONTS, CODE PAGES & CHARACTER SETS, cont'd.

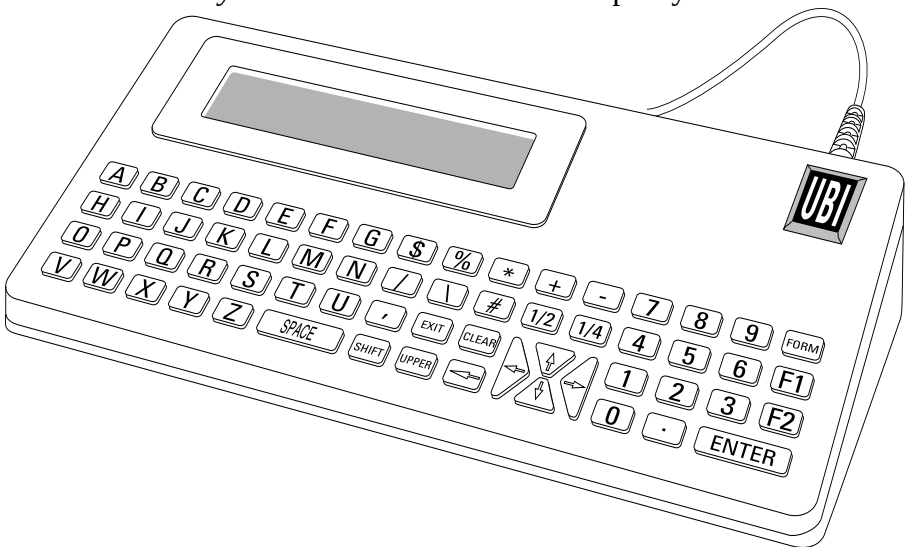
Size 5 (7 bit);
Characters in Dump Mode



4: KEYBOARD DISPLAY UNIT

General Instructions

The *Keyboard Display Unit* (KDU) is a terminal unit that provides *UBI EasyCoder 91* with a stand-alone capacity.



The KDU has sixty-two (62) keys and a 2 × 20 characters LCD display. The KDU is powered by and communicates with the printer through a cable connected to the printer's RS 232C port.

The KDU also has an auxiliary RS 232C port for input only, i.e., from a scanning device, magnetic stripe reader, scale, etc. The KDU provides +5V to the auxiliary port.

The KDU is strictly terminal and ***does not*** have the capability to store data or setup parameters. The KDU is used for the following functions:

- List label forms stored in printer.
- Retrieve stored label forms.
- Input variable data.
- Print label.

Setup

Check that the printer is set up for the following communication protocol, e.g. by issuing a **U** command (see page 108) or entering the Test Mode (see page 32):

Baud rate ***9600***, Parity ***none***, Data bits ***8***, Stop bits ***1***.

If not, reset the communication parameters using a **Y** command, see page 120.

Switch the printer power to OFF and connect the KDU's 9-pin connector to the printer's serial port, then switch power ON.

Continued!

4: KEYBOARD DISPLAY UNIT, cont'd.

Startup

At power ON, the Main Menu reads:

```
FORM - retrieve form
F2 - list forms vx.x
```

List of Saved Forms

Press the <**F2**> key to print a list of saved forms.

The time and date will print out if that option is installed. If not installed, the time and date will print as zero's.

Print a Form

Retrieve a Form:
Press the <**FORM**> key. The top line in the display will prompt:

```
Enter Form Name:
_
```

Enter the form name using the keys on the keyboard. Upper and lower case letters must match exactly as the form name was saved. If a scanner is connected to the KDU, you may enter the form name by scanning.

When the form name is entered, press <**ENTER**> to continue. The form is now retrieved and active in the printer.

Form without Variables:
If the form *does **not*** contain variables, the display line will prompt:

```
Number of Label Sets
1_
```

The default number of labels is always one (1).

Single Label:
If one (1) label is desired, press <**ENTER**> to print that label.

Multiple Labels:
If multiple labels are desired, enter the new quantity and press <**ENTER**> to print labels.

Exit a Form:
Press <**EXIT**> at any time to return to the Main Menu, ***or*** press <**FORM**> to select another form.

Continued!

4: KEYBOARD DISPLAY UNIT, cont'd.

Print a Form, cont'd.

Form with Variables:
If the form contains variables, the display line will display the 1:st variable prompt, i.e.:

```
Store No.
_
```

Enter data at each variable prompt and press <**ENTER**>.

The final prompt is:

```
Number of Label Sets
1_
```

The default number of labels is always one (1).

Single Label:
If one (1) label is desired, press <**ENTER**> to print that label.

Multiple Labels:
If multiple labels are desired, enter the new quantity and press <**ENTER**> to print labels.

Exit a Form:
Press <**EXIT**> at any time to return to the Main Menu, ***or*** press <**FORM**> to select another form.

Form with Consecutive Number Fields:
If the form contains a consecutive number field, the system will automatically keep track of the next number sequence. If you do not need to interfere with this predetermined sequence, press <**ENTER**> at this prompt. The final prompt is:

```
Copies of Each Label
1_
```

The default number of copies is always one (1). If one (1) copy is desired, press <**ENTER**> to print that label.

Note: Change quantity if you desire multiple labels with the same consecutive number.

Continued!

4: KEYBOARD DISPLAY UNIT, cont'd.

Print a Form, cont'd.

Edit a Form:

Once a form has been activated, it will automatically indicate the last information keyed in. If you want to retain that information, press <**ENTER**>.

To Enter Data:

1. Enter the new data, thereby overriding the old data, ***or***
2. Press <**ENTER**> if the old data is correct, ***or***
3. Use the orange backspace key (**<–**) or the <**CLEAR**> key to modify data.

When you have finished editing and have printed the label, you will automatically return to the first variable prompt.

Exit a Form:

Press <**EXIT**> at any time to return to the Main Menu, or press <**FORM**> to select another form.

Protecting Data:

If the label form has been designed to "hide" a variable prompt, e.g., Store No., that data will be protected and this prompt will appear ***only*** when the form is initially retrieved.

Another label design command will prevent a prompt from ever showing and may be desirable for applications, where data should not be changed, e.g., Serial Numbers.

Auxiliary Port

The auxiliary port is intended for RS 232C communication from e.g. a scanner or magnetic strip reader and is provided with a female DB-9 connector. The pin configuration is:

Pin 1	Optional + 5V, 150 mA
Pin 2	N/C
Pin 3	Receive data
Pin 4	N/C
Pin 5	Ground
Pin 6	Ready
Pin 7	N/C
Pin 8	N/C
Pin 9	+ 5V, 150 mA

The communication is permanently set to:

Baudrate	4800
Data Bits	8
Parity	Odd
Stop Bits	1