

# Installation & Operation

P/N 1-960464-00  
Edition 1  
August 1999



# EasyCoder 301 Linerless Label Printer

  
Technologies Corporation

A **UNOVA** Company

# Contents

<b>1. Introduction</b>	Introduction .....	4
	Safety Requirements .....	5
	Product Labelling .....	5
<b>2. Installation</b>	Unpacking .....	6
	Main Parts .....	7
	Connections .....	8
	• Power .....	8
	• Computer .....	8
	Controls and Indicators .....	9
	• Power LED .....	9
	• Feed Button .....	9
<b>3. Operation</b>	Paper Load – Tear Off .....	10
	Printing Test Labels .....	13
	Printing a Label .....	14
	• Windows Driver .....	14
	• Intermec Direct Protocol .....	14
<b>4. Programming</b>	Introduction .....	15
	Programming a Label .....	16
	Command List .....	21
<b>5. Printer Setup</b>	Communication Setup .....	28
	Print Location Setup .....	31
	Media Setup .....	33
	Print Setup .....	34
	Testfeed .....	35
	Printer Setup with Bar Code Wand .....	36

*continued*

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Installation & Operation  
Edition 1, August 1999  
Part No. 1-960464-00*

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## Contents, cont'd.

<b>6. Maintenance &amp; Troubleshooting</b>	Cleaning the Case .....	44
	Cleaning the Printhead .....	46
	Cleaning the Print Roller .....	49
	Changing the Printhead .....	51
	Adjusting Printhead Pressure .....	53
	Troubleshooting .....	54
<b>Appendix 1</b>	Technical Data .....	55
	Printer .....	55
<b>Appendix 2</b>	Media Specifications .....	56
	Paper Roll Size .....	56
	Paper .....	57
	• Non-Adhesive Strip .....	57
	• Self-Adhesive Strip .....	58
	• Self-Adhesive Labels .....	59
	• Tickets with Gap .....	60
	• Tickets with Black Mark .....	61
	New Supplies and Paper Type settings .....	62
<b>Appendix 3</b>	Interfaces .....	63
	Parallel Interface .....	63
	Serial Interface .....	64

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#### **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.

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### **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.

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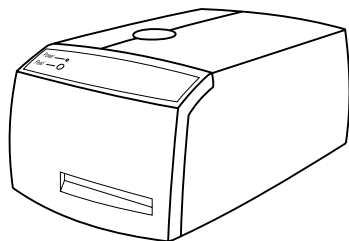
### **EU Standard EN 55022 (The European Union)**

#### **WARNING:**

This is a Class A ITE product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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# Introduction



The EasyCoder 301 LinerLess printer is a direct thermal printer special adapted to use both heat-sensitive linerless paper and standard direct thermal paper. Linerless paper eliminates the liner (backing paper), that usually protects the adhesive on labels, and is thus more economical with about 60% more labels per roll. This gives fewer paper reloads and the environment benefits from less waste.

Thanks to a special top coating, linerless paper has higher resistance against chemicals, scratching and UV light and gives a darker image with longer life than common direct thermal labels with liner.

The labels are torn off manually against the tear-off edge.

The EasyCoder 301 LinerLess printer is fitted with an 8 dots/mm (203.2 dpi) printhead.

The EasyCoder 301 LinerLess is simple to operate, and is designed to work with any computing device capable of ASCII output using either the Intermec Direct Protocol programming language or a Windows printer driver. The Windows drivers work with various versions of Microsoft Windows and allows you to design labels using standard applications, e.g. MS Office. You can also use various versions of Intermec's own Windows-based application, Intermec LabelShop.

You can connect the host computer to the EasyCoder 301 LinerLess via the serial RS 232 port or the parallel Centronics port. A PCMCIA port is also provided so that you can fit an extra memory card or a font card.

The following manuals may be of interest to the operator or programmer:

- Intermec EasyCoder 301 Direct Protocol 2.00; Programmer's Guide
- Intermec LabelShop; various manuals depending on version

## Safety Requirements

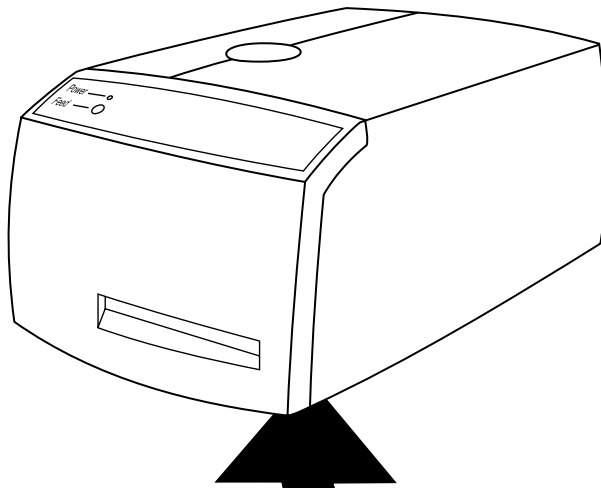
Intermec assumes no responsibility as regards fulfilling the CE Directive if the printer is handled, modified or installed in any way other than that described in the manuals.






**Caution:**

Moving parts are exposed when the side and front covers are open, so ensure that the covers are closed before you operate the printer.

## Product Labelling

The machine sign is attached to the bottom of the printer and contains information on type, model and serial number as well as voltage and signs of approval.



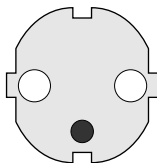
<b>EasyCoder 301</b>		 <small>SP 15 J2</small> <small>UL-109644-1</small>
Model # 1-301020-11		
Serial # 00021		 
110-120/220-240V 4/2A 60/50Hz		
<small>This equipment complies with the requirements for a Class A computing device in FCC Rules Part 15 Subpart J. Operation of this device in a residential area may cause harmful interference requiring the user to take whatever steps may be necessary to correct the interference.</small>		
INTERMEC PRINTER AB, SWEDEN		MADE IN SWEDEN

# Installation

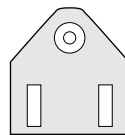
## Unpacking

Before you install the printer, examine the delivery for possible damage or missing parts:

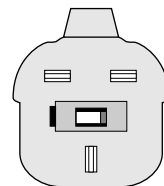
- Open the box and lift the printer out.
- Check that the printer has not been visibly damaged during transportation. Keep the packing materials in case you need to move or reship the printer.
- The label on the base of the printer gives the voltage, the article number and the serial number. The part number indicates the build options.
- Check that any options you ordered are included.
- Check that all the accessories are included in the delivery. In addition to any options and this manual, the box should contain:
  - Intermec EasyCoder 301 LinerLess printer
  - Power cord
  - Quality check card
  - Cleaning card
  - Starter pack of labels
  - User's Guide (multilingual CE manual)
- Check that the power cord and the voltage are appropriate for the local standard.



*European type  
230V mains plug*



*US/Canadian type  
115V mains plug*

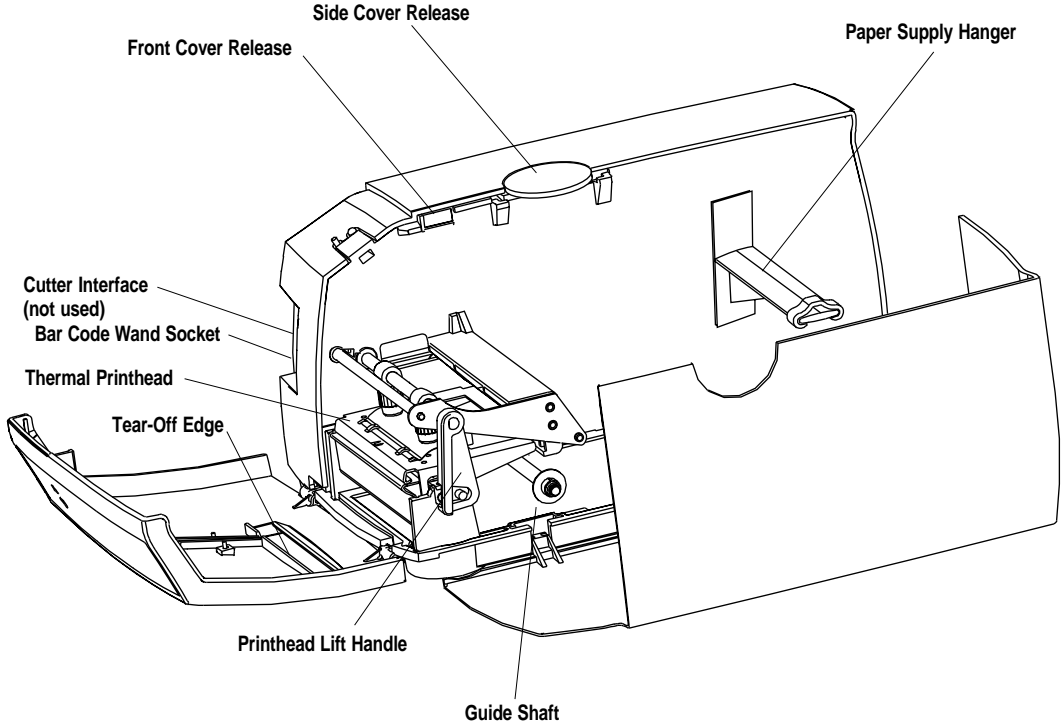


*GB type  
230V mains plug*

If the printer has been damaged in any way during transportation, complain to the carrier immediately.

If the delivery is incorrect or any parts are missing, report it immediately to the distributor.

# Main Parts



*The left side of the case is not designed to be opened by the operator.*



# Connections

## Power

- 1 Place the printer on a level surface, near a mains electrical outlet and with easy access for loading paper and ribbon, and for removing printout.
- 2 Check that the printer is switched off.
- 3 Connect the power cable to the mains receptacle and to the electrical outlet.

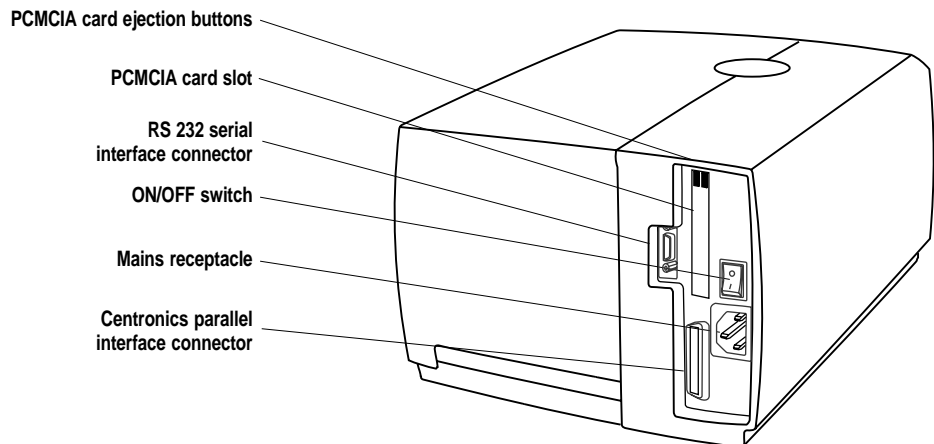
## Computer

The EasyCoder 301 LinerLess is fitted with a 36 pin female Centronics connector for the parallel interface port and a DB9 female connector for the RS 232 serial interface port.

- *Centronics Parallel Interface*: Use the parallel interface with the Windows driver because it is faster than the serial interface.
- *RS 232 Serial Interface*: Use the serial interface with Direct Protocol programming because you can receive error messages from your printer. This is not available using the parallel interface.

Switch off both the PC and the EasyCoder 301 LinerLess before connecting them together.

The EasyCoder 301 LinerLess is also fitted with a Type 3 PCMCIA slot, which can hold up to two Type 1 or Type 2 PCMCIA cards (5V). These can be Memory or Font cards and are optional.

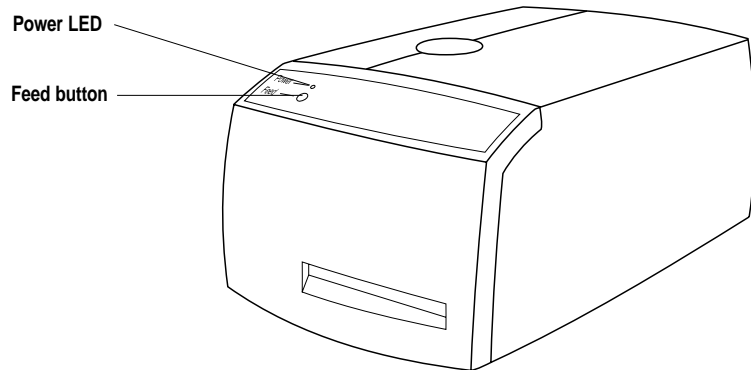


# Controls and Indicators

The EasyCoder 301 LinerLess has one control - the **Feed** button - and one indicator - the **Power LED**. The **Power LED** is tri-coloured and indicates the status of the EasyCoder 301 LinerLess.

## Power LED

LED shows	Meaning
<b>No light:</b>	Power off
<b>Green:</b> <ul style="list-style-type: none"> <li>• Steady</li> <li>• Flashing</li> <li>• Single Flash</li> </ul>	Power on Busy (executing or receiving data) Bar code successfully read
<b>Amber:</b> <ul style="list-style-type: none"> <li>• Steady</li> <li>• Momentarily</li> </ul>	Bar code wand active (lasts max. 10 sec:s) During power on
<b>Red:</b> <ul style="list-style-type: none"> <li>• Steady</li> <li>• Single flash</li> </ul>	Bar code wand inactive Error condition, e.g. - Printhead lifted - Out of paper Bar code reading failed



## Feed Button

Press **Feed** to dispense a blank label, if no label design has been downloaded to the printer.

Press **Feed** to print a label after a label design has been downloaded to the printer and the **Feed** button has been set up to work as a **Print** button (see page 14).

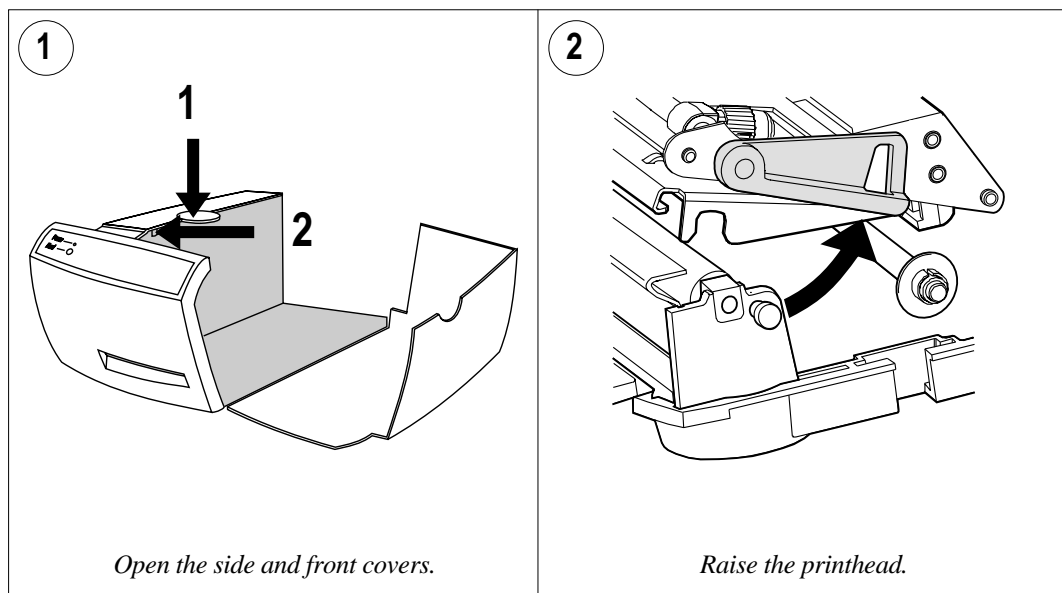
You can also use **Feed** to print a test label (see page 13).

# Operation

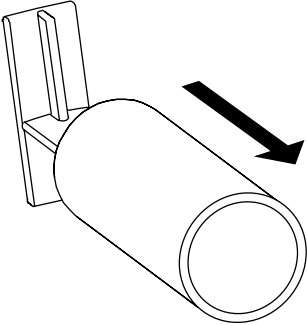
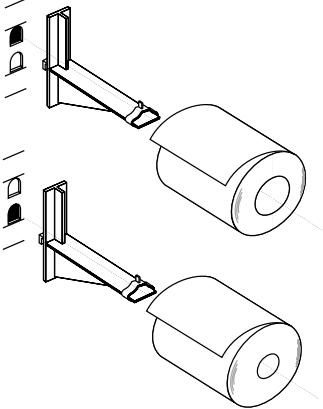
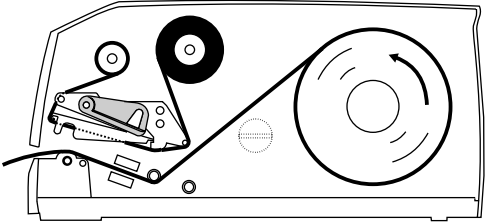
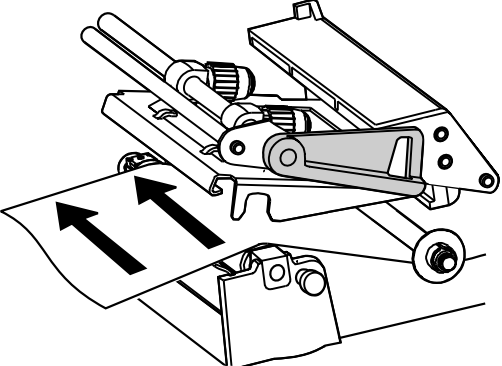
## Paper Load – Tear Off

The same loading principles apply to linerless paper as well as standard direct thermal media.

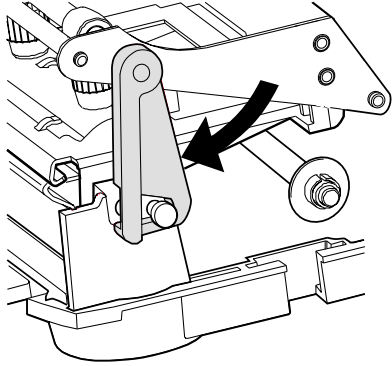
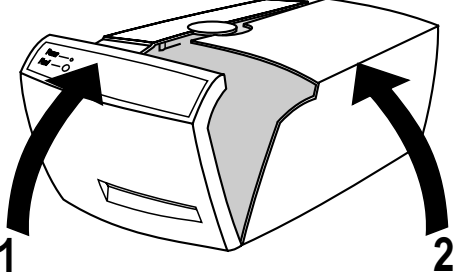
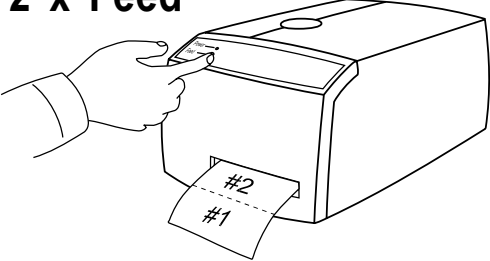
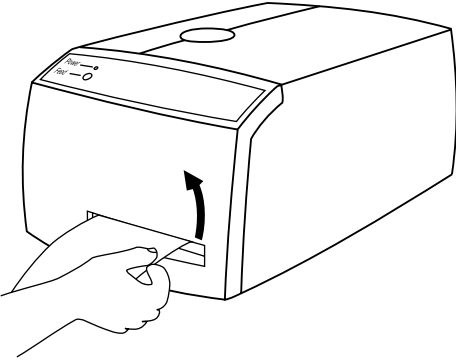
To tear off the paper after feeding or printing it, always pull it upwards against the tear off edge.



## Paper Load – Tear Off, cont'd.

<p><b>3</b></p>  <p><i>Remove the empty paper core, if any. It is not necessary to remove the end stop.</i></p>	<p><b>4</b></p>  <p><i>Ensure that the paper supply hanger is in the correct position for the new paper roll size. The hanger is easier to move if first rotated <math>\frac{1}{4}</math> of a turn. Push the new roll as far back as it will go.</i></p>
<p><b>5</b></p>  <p><i>Feed the paper under the guide roller, over the print roller and through the dispenser slot.</i></p>	<p><b>6</b></p>  <p><i>Push the paper as far in as it will go and adjust the guide ring according to the paper width.</i></p>

## Paper Load – Tear Off, cont'd.

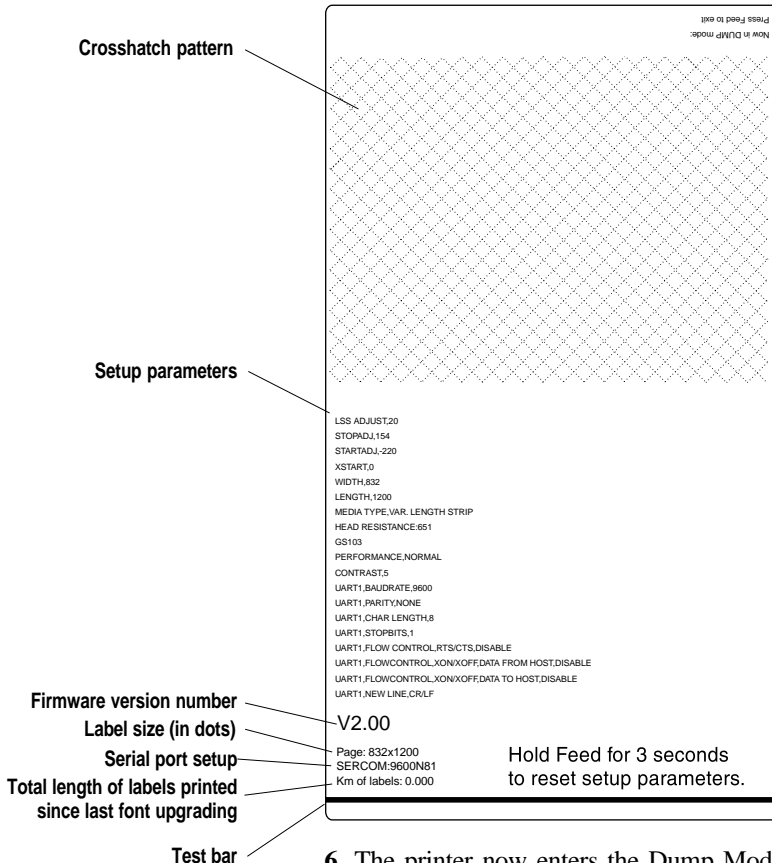
<p>7</p>  <p><i>Lower the printhead.</i></p>	<p>8</p>  <p><i>Close the covers.</i></p>
<p>9</p> <p><b>2 x Feed</b></p>  <p><i>Print out two blank copies by pressing <b>Feed</b> twice.</i></p>	<p>10</p>  <p><i>To tear off a label, pull it upward.</i></p>

# Printing Test Labels

The EasyCoder 301 LinerLess prints a test label containing the printer's current setup and other useful information plus a test bar and a crosshatch pattern allowing you to check that the printhead is performing correctly.

To print the test label:

- 1 Turn off the printer.
- 2 Press and hold the **Feed** button and turn the printer on.
- 3 Release **Feed** button when the green LED flashes.
- 4 The printer carries out a **TESTFEED** and sets the printhead resistance.
- 5 After a delay, the labels is printed:



- 6 The printer now enters the Dump Mode, in which all ASCII characters received from the host on any port will printed on labels. To exit the Dump Mode and auto-align the web, tap the **Feed** button.

## Printing Test Labels, cont'd.

Test labels<sup>1</sup> are designed to be printed on continuous media. If the printer has labels loaded, some lines of the test label may be positioned in the gaps between the labels.

If you wish to return the printer to its default setup, press and hold **Feed** for three seconds after printing the test label.

When you change the printer's setup, the new settings are saved and will continue in operation until you reset or change them, even after the printer has been switched off.

## Printing a Label

### Windows Driver

You can print labels using the Windows printer driver or the Intermec Direct Protocol programming language.

If you are using the Windows driver for the EasyCoder 301 LinerLess:

- 1 Design a label in e.g. MS Office, or in Intermec LabelShop.
- 2 Enter the number of copies required in the EasyCoder 301 LinerLess printer driver.
- 3 Send the label to print.

### Intermec Direct Protocol

If you are using Intermec Direct Protocol, there are two ways to prepare and print a label:

- Type instructions in the Direct Protocol programming language into the Terminal, which sends them to the printer one instruction at a time. To print a label, send a **PRINTFEED** command.
- Type instructions in the Direct Protocol programming language into a text editor and send the resulting text file to the printer using DOS Copy or the Terminal. If you include a **PRINTFEED** command in your file, the printer will print the label immediately.

You can tell the printer how many copies you want by adding a number to the **PRINTFEED** command, e.g. **PRINTFEED 22**.

When you have sent a label to the printer, it will be printed out whenever you send a **PRINTFEED** command. If you turn off the printer or send any command starting a new label, the previous label format will be lost.

If you have enabled the **Feed** button to work as a print button using a **PRINT KEY ON** command, a new copy of the label presently stored in the image buffer will be printed each time you press the **Feed** button.

See Chapter 4 “Programming; Programming a Label” for further information.

<sup>1</sup>/. The label size given on the test label is not necessarily the correct size of the labels loaded into the printer. It is the size for which the printer has been set up.

# Programming

## Introduction

The EasyCoder 301 LinerLess can use the Intermec Direct Protocol programming language as an alternative to the Windows driver. It is an easy-to-use printer protocol that has been developed for use with the computer-controlled direct thermal and thermal transfer printers manufactured by Intermec.

Intermec Direct Protocol can be used to send instructions to the printer in two ways:

- To create label layouts consisting of fields with fixed or variable information. A layout can then be selected and provided with variable input from the host computer in the form of a simple string of data.
- To send input data and formatting instructions as a continuous string of data directly from the host computer.

The EasyCoder 301 LinerLess is designed to operate with anything from an unintelligent terminal to a mainframe computer system. The host computer only needs to be able to transmit characters in ASCII format. It is preferable to connect the printer to the host via the serial RS 232 port, which will provide two-way communication and enable printer errors to be returned.

- If the printer is to be controlled via the Windows Terminal application, connect via the serial RS 232 port. You can type commands directly into the Terminal, or compose them in Notepad or Write and paste them into the Terminal (see the Microsoft Windows User's Guide). You will receive error messages from the printer.
- If the printer is to be controlled via MS-DOS, connect via either the serial RS 232 port or the parallel Centronics port. You can use the DOS Edit program to compose the commands. To print, use DOS Edit's File/Print command or use the DOS Copy or Type commands (see the MS-DOS User's Guide). You will **not** receive error messages from the printer.
- If the printer is connected to a non-PC host computer, connect via the serial RS 232 port. You can type commands directly into the terminal or compose them in a text editor first. You will receive error messages from the printer.

*Refer to the Intermec EasyCoder 301 Direct Protocol Programmer's Guide for more detailed programming information.*



## Programming a Label

Intermec Direct Protocol can be used to send instructions to the printer in two ways:

- You can send individual commands which the printer will act on immediately, mainly for setting up the printer, retrieving information from the printer, and for managing files, fonts and images.

*Examples:*

**PRINT KEY ON** ↵ (enable printing using the **Feed button**)

? **DATE\$** ↵ (print the current date to the OUT channel)

**KILL "LAYOUT1"** ↵ (delete a layout or file)

You can use this method to produce a label, because the printer will retain all label design instructions until you press **Feed**<sup>1</sup> or send a **PRINTFEED** command.

- You can create a text file containing all the commands necessary to lay out one or more labels and send it to the printer. If the text file contains a **PRINTFEED** command, the label will be printed out. If not, press **Feed** to print the label<sup>1</sup>.

There are two types of label programming:

- A fixed label design, where the printer prints exactly what you have programmed.
- A layout which may contain variables. Layouts can be saved and called up when required. The value of the variables can be set by a data string from the host computer.

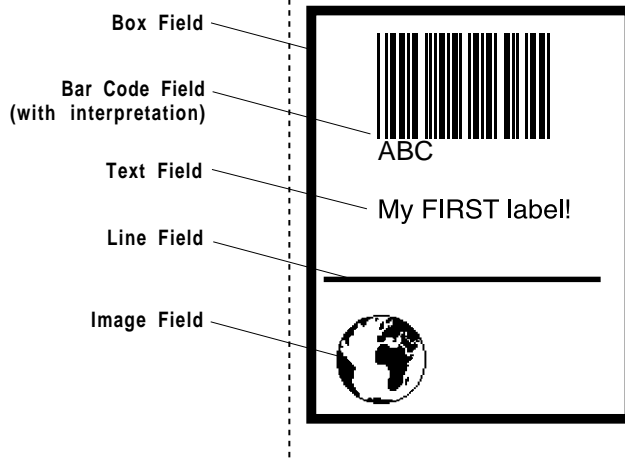
<sup>1</sup>/.The **Feed** button will only produce a printout if it has been enabled using the **PRINT KEY ON** command. Otherwise, a blank copy will be produced each time the **Feed** button is pressed (formfeed).

## Programming a Label, cont'd.

A label design is made up of fields. There are five different types of field, each of which must be specifically formatted:

- **Text Field:**  
A text field consists of a single line of text, formatted for font, magnification, rotation and normal or inverse image.
- **Bar Code Field:**  
A bar code field consists of a single bar code, with or without a bar code interpretation in human readable characters, formatted for type, height, bar ratio, magnification, rotation, interpretation On/Off and interpretation font.
- **Image Field:**  
An image field is a picture, drawing, logotype or other type of illustration. Images sent to the printer should be in .PCX format, and formatted for magnification and normal or inverse image. Images can only be rotated by 180°.
- **Box Field:**  
A box field is a square or rectangular area surrounded by a black border line, which must be formatted for height, width, line thickness and rotation. If the border is sufficiently thick, the whole area may appear black.
- **Line Field:**  
A line field is a black line that goes either along or across the paper web, and is formatted for length, line thickness and rotation. A short, thick line can look like a black box.

There are no restrictions, other than the size of the memory, regarding the number of fields on a single label.



## Programming a Label, cont'd.

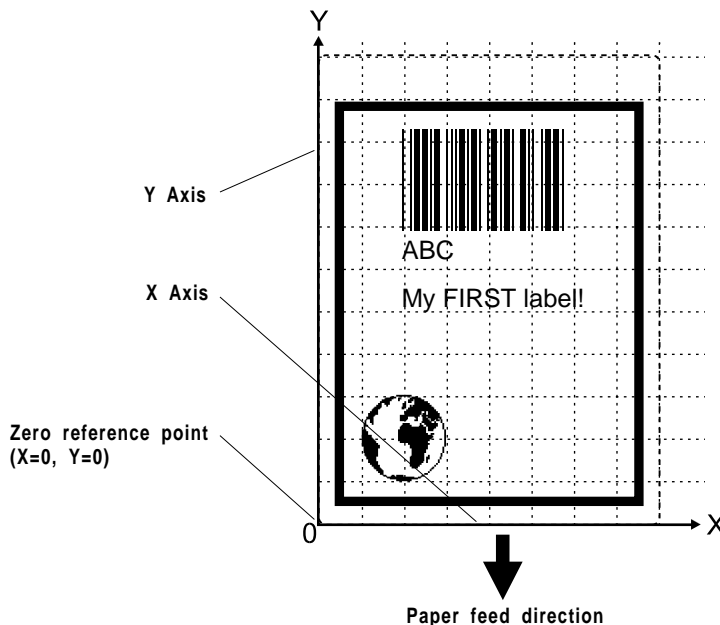
Positions on the printable area of the label are defined in terms of an X/Y grid, where the X axis runs across the label and the Y axis runs along the web. The unit of measurement is dots. There are 8 dots per millimetre and 203.2 dots per inch.

The zero point is at the front left corner of the label as it emerges from the printer. This position is set up in the printer using the **XSTART** value for the X axis and the **STARTADJ** value for the Y axis. All field locations are measured from this point. Setting the **STARTADJ** value to -220 and the **STOPADJ** value to 154 will begin printing just after where the previous portion of strip was torn off (variable length strip).

The insertion point of any printable object is specified by the **PRPOS (PP)** command, followed by the X coordinate, then the Y coordinate, e.g. **PP 100,200**.

Any type of field should be specified with regard to its position, its alignment and its direction. If it is not specified, any previous relevant entry will be used.

See the Intermec Direct Protocol Programmer's Guide for more details.



## Programming a Label, cont'd.



As an example, the programming for “My First Label” is included here to help you to get started with designing and programming your own labels and layouts.

You can send the programme as a single string of data, with the individual commands separated by a colon (:):

```
BF ON:BF "Swiss 721 BT",9,0:PP 10,20:PX 400,300,10:
PP 25,25:PM "ROM:GLOBE.1":PP 75,250:BT "CODE39":PB
"ABC":PP 75,200:FT "Swiss 721 BT",9,0:PT "My FIRST
label!":PF ↵
```

You can also send the same data string line by line, or type it into a text editor and send it as a complete text file:

```
BF ON ↵ (enable bar code interpretation)
BF "Swiss 721 BT",9,0 ↵ (select interpretation font)
PP 10,20 ↵ (insertion point for box field)
PX 400,300,10 ↵ (create a box)
PP 25,25 ↵ (insertion point for image field)
PM "ROM:GLOBE.1" ↵ (select image)
PP 75,250 ↵ (insertion point for bar code field)
BT "CODE39" ↵ (select bar code type)
PB "ABC" ↵ (input data to bar code field)
PP 75,200 ↵ (insertion point for text field)
FT "Swiss 721 BT",9,0 ↵ (select font for text field)
PT "My FIRST label!"↵ (input data to text field)
PF ↵ (print one label)
```

If you wish to create a layout which you can use to produce labels with different text or barcode content, you must do it in two stages. First create the layout:

```
LAYOUT INPUT "LABEL1" ↵ (start layout recorder)
BF ON ↵ (enable bar code interpretation)
BF "Swiss 721 BT",9,0 ↵ (select interpretation font)
PP 10,20 ↵ (insertion point for box field)
PX 400,300,10 ↵ (create a box)
PP 25,25 ↵ (insertion point for image field)
PM "ROM:GLOBE.1" ↵ (select image)
PP 75,250 ↵ (insertion point for bar code field)
BT "CODE39" ↵ (select bar code type)
PB VAR1$ ↵ (variable input data to bar code field)
PP 75,200 ↵ (insertion point for text field)
FT "Swiss 721 BT",9,0 ↵ (select font for text field)
PT VAR2$ ↵ (variable input data to text field)
LAYOUT END ↵ (save layout)
```

↵ = Carriage Return

## Programming a Label, cont'd.

Then add the variable data and a print instruction:

```
LAYOUT RUN "LABEL1" ↵ (select layout)
<STX> (start of input data, ASCII 02 dec)
ABC ↵ (variable input data to VAR1$)
My FIRST label! ↵ (variable input data to VAR2$)
<EOT> (end of input data, ASCII 04 dec)
PF ↵ (print one label)
```

To print more than one label, add the number of copies to the **PRINTFEED** command, e.g. **PF 10**.

For details on formatting the fields, see the Intermec Direct Protocol Programmer's Guide.

## Command List

The Intermec Direct Protocol commands are listed below, with a brief description of their purpose and syntax. For full explanation, refer to the *EasyCoder 301 Direct Protocol, Programmer's Guide*.

Instruction	Purpose and Syntax
ALIGN (AN)	Specifies which part (anchor point) of a text, bar code field, image field, line or box will be positioned at the insertion point. <code>ALIGN AN &lt;anchor point&gt;</code>
BARFONT (BF)	Specifies a single byte character set font for printing human readable bar code interpretation. The settings are: start parameter; font name; font size in points; character slant in degrees, with positive values slanting the characters to the right; vertical offset between the barcode and the interpretation; width magnification; height magnification; enable/disable the printing of barcode interpretations. <code>BARFONT BF [#&lt;starting parameter number&gt;,"&lt;fontname&gt;"[,&lt;size&gt;[,&lt;slant&gt;[,&lt;offset&gt;[,&lt;hmag&gt;[,&lt;vmag&gt;]]]]][ON OFF]</code>
BARFONT (BF) ON/OFF	Enables/disables the printing of bar code interpretations. <code>BARFONT BF ON</code> <code>BARFONT BF OFF</code>
BARFONTD (BFD)	Specifies a double byte character set font for printing human readable bar code interpretation. The settings are: font name; font size in points; character slant in degrees. <code>BARFONTD BFD "&lt;fontname&gt;"[,&lt;size&gt;[,&lt;slant&gt;]]</code>
BARFONTD SIZE (BFSD)	Specifies the font size of a double byte character set in points for printing human readable bar code interpretation. <code>BARFONTD SIZE BFSD &lt;size&gt;</code>
BARFONTD SLANT (BFLD)	Specifies the slant of a double byte character set font in degrees for printing human readable bar code interpretation. <code>BARFONTD SLANT BFLD &lt;slant&gt;</code>
BARFONT SIZE (BFS)	Specifies the font size for a single byte character set font in points for printing human readable bar code interpretation. <code>BARFONT SIZE BFS &lt;size&gt;</code>
BARFONT SLANT (BFL)	Specifies the slant of a single byte character set font in degrees for printing human readable bar code interpretation. <code>BARFONT SLANT BFL &lt;slant&gt;</code>
BARHEIGHT (BH)	Specifies the height of a bar code in dots. <code>BARHEIGHT BH &lt;height&gt;</code>
BARMAG (BM)	Specifies the magnification with regard to the width of the bars in a bar code. <code>BARMAG EM &lt;magnification&gt;</code>

## Command List, cont'd.

Instruction	Purpose and Syntax
BARRATIO (BR)	Specifies the width ratio between wide and narrow bars in a bar code. <code>BARRATIO BR &lt;ratio&gt;</code>
BARSET	Specifies a bar code and sets additional parameters for complex bar codes. <code>BARSET "bar code name",&lt;ratio wide bars&gt;,&lt;ratio narrow bars&gt;,&lt;mag&gt;,&lt;height&gt;</code>
BARTYPE (BT)	Specifies the type of bar code. <code>BARTYPE BT "&lt;bar code name&gt;"</code>
BREAK	Specifies a break interrupt character separately for the parallel and serial communication channels. <code>BREAK &lt;device&gt;,&lt;break character&gt;</code>
BREAK ON/OFF	Enables/disables break interrupt separately for the parallel and serial communication channels. <code>BREAK &lt;device&gt; ON OFF</code>
CHR\$	Returns the ASCII character whose number is given in the brackets. <code>CHR\$(&lt;ASCII character number&gt;)</code>
CLEANFEED	Runs the printer's feed mechanism, for the distance specified in dots to allow cleaning. <code>CLEANFEED &lt;length in dots&gt;</code>
CLL	Completely clears the print image buffer, if no starting field is specified. If a field is specified, the print image buffer is cleared from the field to the end of the label. <code>CLL [&lt;variable name&gt;%]</code>
COPY	Copies files. <code>COPY "[ram: card1: card2:]&lt;original filename&gt;","[ram: card1: card2:]&lt;new filename&gt;" "uart1:"</code>
COUNT&	Creates a counter. Alpha counters range from A to Z, but numeric counters have no practical limit. <code>COUNT&amp; "START",&lt;counter number&gt;,&lt;start value&gt;</code> <code>COUNT&amp; "WIDTH",&lt;counter number&gt;,&lt;number of digits&gt;</code> <code>COUNT&amp; "COPY",&lt;counter number&gt;,&lt;number of copies&gt;</code> <code>COUNT&amp; "INC",&lt;counter number&gt;,&lt;incr. value&gt; &lt;decr. value&gt;</code> <code>COUNT&amp; "STOP",&lt;counter number&gt;,&lt;stop value&gt;</code> <code>COUNT&amp; "RESTART",&lt;counter number&gt;,&lt;restart value&gt;</code>

## Command List, cont'd.

Instruction	Purpose and Syntax
DATE\$	Sets or returns the current date, optionally in the format specified by the <b>FORMAT DATE\$</b> command. <b>DATE\$ = "&lt;YYMMDD&gt;"</b> <b>PRINT DATE\$["F"]</b>
DATEADD\$	Returns a new date after a number of days has been added to, or subtracted from, the current date or optionally a specified date. The current date is not changed. <b>PRINT DATEADD\$(["&lt;original date&gt;",]&lt;number of days&gt;["F"])</b>
DIR	Specifies the print direction. <b>DIR &lt;direction&gt;</b>
ERROR	Defines error messages and enables the error handler for specified error conditions. <b>ERROR &lt;error number&gt;,"&lt;error message&gt;"</b>
FIELDNO	Gets the current field number for partial clearing of the print buffer by a CLL instruction. <b>&lt;variable name&gt;%=FIELDNO</b>
FILE& LOAD	Receives and stores binary files in the printer's RAM memory. <b>FILE&amp; LOAD "&lt;filename&gt;",&lt;file size&gt;</b>
FILES	Lists the files stored in one of the printer's directories to the standard OUT channel. RAM is the default if no other drive is specified. <b>FILES ["rom: ram: card1: card2:"]</b>
FONTD (FD)	Selects a double byte character set font for the printing of subsequent PRTXT instructions, and optionally sets the font size and slant. <b>FONTD FD "&lt;fontname&gt;"[,&lt;size&gt;[,&lt;slant&gt;]]</b>
FONTDSize (FSD)	Sets the size in points of the current double byte character set font. <b>FONTDSize FSD &lt;size&gt;</b>
FONDSLANT (FLD)	Sets the slant in degrees of the current double byte character set font. <b>FONDSLANT FLD &lt;slant&gt;</b>
FONT (FT)	Selects a single byte character set font for the printing of subsequent PRTXT instructions, and optionally sets the font size and slant. The default font is Swiss 721 BT, the default size is 12pt, and the default slant is 0°. <b>FONT FT "&lt;fontname&gt;"[,&lt;size&gt;[,&lt;slant&gt;]]</b>



## Command List, cont'd.

Instruction	Purpose and Syntax
FONTSIZE (FS)	Sets the size in points of the current single byte character set font. <code>FONTSIZE FS &lt;size&gt;</code>
FONTSLANT (FL)	Sets the slant in degrees of the current single byte character set font. <code>FONTSLANT FL &lt;slant&gt;</code>
FONT\$	Returns the names of all fonts stored in the printer's memory to the standard OUT channel. <code>FONT\$</code>
FORMAT	Formats the printer's RAM memory, or formats a SRAM-type memory card to MS-DOS format. <code>FORMAT "&lt;device&gt;"[,&lt;no of entries&gt;[.&lt;no of bytes&gt;]]</code>
FORMAT DATE\$	Specifies the format of the string returned by <code>DATE\$("F")</code> and <code>DATEADD\$(...,"F")</code> instructions. <code>FORMAT DATE\$ &lt;string&gt;</code>
FORMAT INPUT	Specifies separators for layout variable data entry. <code>FORMAT INPUT "&lt;start separator&gt;","&lt;end separator&gt;","&lt;field separator&gt;","&lt;start of message character&gt;","&lt;end of message character&gt;"</code>
FORMAT TIME\$	Specifies the format of the string returned by <code>TIME\$("F")</code> and <code>TIMEADD\$(...,"F")</code> instructions. <code>FORMAT TIME\$ "&lt;string&gt;"</code>
FORMFEED (FF)	Activates the paper feed mechanism in order to feed out or pull back a certain length of the paper web. If the feed length is not specified, the printer feeds a blank label. <code>FORMFEED FF [&lt;feed length in dots&gt;]</code>
FRE	Returns the number of free bytes in the printer's RAM memory. <code>FRE(1)</code>
FUNCTEST\$	Performs various hardware tests on the ROM, RAM, any cards fitted and on the printhead. <code>FUNCTEST\$("&lt;rom1: rom2: ram: card1: card2: head")</code>
HEAD	Returns the result of a printhead check and sets printhead resistance. <code>PRINT HEAD(&lt;type of check&gt;)</code>
IMAGE LOAD	Receives and stores image files in .PCX format either in the file system or in volatile memory. <code>IMAGE LOAD "&lt;imagename&gt;",&lt;filesize&gt;,&lt;flag&gt;"</code>

## Command List, cont'd.

Instruction	Purpose and Syntax
IMAGES	Returns the names of all images stored in the printer's memory to the standard OUT channel. <b>IMAGES</b>
INPUT ON	Sets <b>SYSVAR(18)</b> to 0 and enables layouts and use of variable data fields. <b>INPUT ON</b>
INPUT OFF	Restores <b>SYSVAR(18)</b> and disables layouts and use of variable data fields. <b>INPUT OFF</b>
INVIMAGE (II)	Inverts the printing of text and images from "black-on-white" to "white-on-black." <b>INVIMAGE   II</b>
KILL	Deletes a file from the printer's RAM memory or from a DOS-formatted memory card. <b>KILL "&lt;filename&gt;"   "card1:&lt;filename&gt;"   "card2:&lt;filename&gt;"</b>
LAYOUT END	Stops the recording of a layout description and saves the layout. <b>LAYOUT END</b>
LAYOUT INPUT	Starts the recording of a layout description. <b>LAYOUT INPUT "&lt;layout name&gt;"</b>
LAYOUT RUN	Enables a pre-defined layout. <b>LAYOUT RUN "&lt;layout name&gt;"</b>
MAG	Magnifies a font, barfont or image up to four times separately in regard of height and width. <b>MAG &lt;height mag&gt;, &lt;width mag&gt;</b>
MAP	Changes the ASCII value of a character when received on the standard IN channel, or optionally on another specified communication channel. <b>MAP [&lt;device&gt;], &lt;original ASCII value&gt;, &lt;desired ASCII value&gt;</b>
NAME DATE\$	Enters the preferred month name in return strings of <b>DATE\$( "F" )</b> and <b>DATEADD\$( . . . , "F" )</b> . <b>NAME DATE\$ &lt;No. of month&gt;, "&lt;name of month&gt;"</b>
NAME WEEKDAY\$	Enters the preferred weekday name in return strings of <b>WEEKDAY\$</b> . <b>NAME WEEKDAY\$ &lt;No. of weekday&gt;, "&lt;name of weekday&gt;"</b>
NASC	Selects a national single byte character set font. <b>NASC &lt;character set number&gt;   "&lt;filename of character set&gt;"</b>

## Command List, cont'd.

Instruction	Purpose and Syntax
NASCD	Selects a mapping method for double byte character set fonts. NASCD "<filename of character set>"
NORIMAGE (NI)	Returns to normal printing after <b>INVIMAGE</b> printing. NORIMAGE NI
PRBAR (PB)	Prints a bar code. PRBAR PB <input data>[;<input data>]
PRBOX (PX)	Prints a box. PRBOX PX <height>,<width>,<line thickness>
PRESCALE (PS)	Scales the characters listed in the accompanying text string using the current font settings. PRESCALE PS "<string>"
PRIMAGE (PM)	Prints an image stored in the printer's memory. PRIMAGE PM "<image name>"
PRINT (?)	Prints data to the standard OUT channel. PRINT ? "<input data>"["<input data>"]
PRINT KEY ON/OFF	Enables/disables printing of the current label when the <b>Feed</b> key is pressed. PRINT KEY ON OFF
PRINTFEED (PF)	Prints and feeds out one or a specified number of labels, tickets, tags or portions of strip, according to the printer's setup. PRINTFEED PF [<batch size>]
PRLINE (PL)	Draws a solid rectangle. PRLINE PL <length>,<line thickness>
PRPOS (PP)	Specifies the insertion point for a line of text, a bar code, an image, a box or a line. PRPOS PP <x-coordinate>,<y-coordinate>
PRSTAT	Returns the printer's current status. (PRSTAT AND <parameter>)
PRTXT (PT)	Provides the input data for a text field, i.e. a line of text. PRTXT PT "<input data>"["<input data>"]
REBOOT	Restarts the printer. REBOOT

## Command List, cont'd.

Instruction	Purpose and Syntax
REMOVE IMAGE	Removes a specified image from the printer's memory. <code>REMOVE IMAGE "&lt;name&gt;"</code>
SETSTDIO	Forces selection of standard IN and OUT communication channel. This is normally automatic. <code>SETSTDIO &lt;IN channel&gt;,&lt;OUT channel&gt;</code>
SETUP	Changes the setup by means of a setup string or setup file. <code>SETUP "&lt;setup string&gt;" "&lt;setup filename&gt;"</code>
SETUP WRITE	Creates a setup file containing the printer's current setup values or prints the current setup to the host via the serial port. <code>SETUP WRITE "&lt;setup filename&gt;" "uart1:"</code>
SYSVAR	Reads or sets various system variables. <code>PRINT SYSVAR(&lt;parameter&gt;)</code> <code>SYSVAR(&lt;parameter&gt;)=&lt;value&gt;</code>
TESTFEED	Slowly feeds paper to allow the label stop sensor to adjust itself according to the presently loaded paper web. <code>TESTFEED</code>
TIME\$	Sets or returns the current time, optionally in the format specified by the <b>FORMAT TIME\$</b> command. <code>TIME\$ = "&lt;HHMMSS&gt;"</code> <code>PRINT TIME\$[("&lt;F&gt;")]</code>
TIMEADD\$	Returns a new time after a number of seconds have been added to, or subtracted from, the current time or optionally a specified time. <code>PRINT TIMEADD\$(["&lt;original time&gt;",&lt;no. of seconds&gt;[,&lt;F&gt;"])</code>
V% = FIELDNO	Assigns the number of the current field to a variable. <code>&lt;variable name&gt;%=FIELDNO</code>
VERSION\$	Returns the version of the software, printer family, or type of CPU board. <code>PRINT VERSION\$[(&lt;type of info&gt;)]</code>
WEEKDAY\$	Returns the name of the weekday for a specified date. <code>PRINT WEEKDAY\$("&lt;date&gt;")</code>
WEEKNUMBER	Returns the number of the week for a specified date. <code>PRINT WEEKNUMBER("&lt;date&gt;")</code>

# Printer Setup

## Communication Setup

The EasyCoder 301 LinerLess can receive data on both the parallel and serial port, so there is no need to specify which port is to be used:

- Either select the parallel port on the printer, compose a text file containing the required setup commands and send it to the printer via the parallel port.
- Or establish two-way serial communication between printer and host computer as described below.

To set up two-way serial communication with the EasyCoder 301 LinerLess:

- 1 Print out a test label to check the printer's RS 232 serial port setting (see Chapter 3 "Operation; Printing Test Labels").
- 2 Configure the serial port on your host computer to match the printer's settings.
- 3 Use the **SYSVAR(18)=n** command to set the amount of information to be passed back from the printer (called the Verbosity Level).
- 4 Use the **SETUP** command to configure the serial port settings.

**SYSVAR** Verbosity Level settings:

- 1 All levels enabled (Default)
- 0 No verbosity
- 1 Echo received characters
- 2 "OK" after correct command lines
- 4 Echo input characters from communication port
- 8 Error after failed line

Bits can be combined so, e.g., **SYSVAR(18)=3** means both "Echo received characters" and "OK after correct command lines".

Once the printer and computer can communicate using the default serial port settings, you can change the settings to whatever communications settings you require, first on the printer and then on the computer.

Once you have established a working serial communication both ways between printer and host, you can use the command to configure the printer as described on the following pages.

*See the Intermec EasyCoder 301 Direct Protocol 2.00 Programmer's Guide for more information on the meaning and use of these settings and for their full command syntax.*

## Communication Setup, cont'd.

By default, the serial port is set for 9600 baud, No parity, 8 data bits, 1 stop bit, XON/XOFF disabled both ways. Note that as soon as a parameter is changed, you must change the setup of the host the same way, or the communication will be lost.

- **Baudrate**

This setting controls the speed of the serial communication between printer and host (1 baud = 1 data bit per second). There are 8 options:

**300 600 1200 2400 4800 9600 19200 38400**

*Setup string, example:*

```
SETUP "SER-COM,UART1,BAUDRATE,9600" ↵
```

- **Parity**

This setting controls how the software will check for errors in the serial communication. There are 5 options:

**None Even Odd Mark Space**

*Setup string, example:*

```
SETUP "SER-COM,UART1,PARITY,NONE" ↵
```

- **Character Length**

This setting controls how many bits are used to specify a character in the serial communication. There are two options:

**7** Characters ASCII 0 – 127 dec. can be transmitted

**8** Characters ASCII 0 – 256 dec. can be transmitted

*Setup string, example:*

```
SETUP "SER-COM,UART1,CHAR_LENGTH,7" ↵
```

- **Stop Bits**

This setting controls how many bits are used to specify a stop character in the serial communication. There are two options:

**1 or 2**

*Setup string, example:*

```
SETUP "SER-COM,UART1,STOPBITS,1" ↵
```

*In the setup string examples, underscored space characters (as in "CHAR\_LENGTH") indicate mandatory space characters in the command line.*

*Quotation marks (" ") are ASCII 34 dec.*

# Communication Setup, cont'd.

- **Data Flow Control**

Data flow control determines serial communication between printer and host. It prevents characters being lost when data is transferred between printer and host at high speeds over the RS232 serial port. It is important that the printer and host have the same configuration.

There are three recommended settings for controlling data flow between printer and host.

- **No flow control**

RTS/CTS is disabled

XON/XOFF, Data from Host is disabled.

XON/XOFF, Data to Host is disabled

- **RTS/CTS**

This protocol controls communication by handshake signals through separate wires in the cable.

RTS/CTS is enabled

XON/XOFF, Data from Host is disabled.

XON/XOFF, Data to Host is disabled

- **XON/XOFF, Data from Host**

This protocol controls communication using the special characters XON (ASCII 17 dec.) and XOFF (ASCII 19 dec.) which are transmitted on the same wires as the data.

RTS/CTS is disabled

XON/XOFF, Data from Host is enabled

XON/XOFF, Data to Host is disabled

*Note:*

*It is not recommended that you enable XON/XOFF, Data to Host.*

*Setup strings, examples:*

```
SETUP "SER-COM,UART1,FLOWCONTROL,RTS/CTS,DISABLE" ↵
```

```
SETUP "SER-COM,UART1,FLOWCONTROL,XON/XOFF,DATA_TO_HOST,DISABLE" ↵
```

```
SETUP "SER-COM,UART1,FLOWCONTROL,XON/OFF,DATA_FROM_HOST,ENABLE" ↵
```

- **New Line Character**

This setting specifies the character(s) transmitted from printer to host to initiate switching to a new line:

- CR (ASCII 13 dec.)

- LF (ASCII 10 dec.)

- CR/LF (ASCII 13 + 10 dec.)

*Setup string, example:*

```
SETUP "SER-COM,UART1,NEW_LINE,CR/LF" ↵
```

*In the setup string examples, underscored space characters (as in "DATA\_TO\_HOST") indicate mandatory space characters in the command line.*

*Quotation marks (" ") are ASCII 34 dec.*

# Print Location Setup

## *Recommended Adjustment:*

### *Print from top of label:*

*Start Adjust:*    -220

*Stop Adjust:*     154

*In the setup string examples, underscored space characters (as in "MEDIA\_SIZE") indicate mandatory space characters in the command line.*

*Quotation marks (" ") are ASCII 34 dec.*

## • Paper Feed Adjustments

There are two settings that control the amount of blank paper to be fed before the actual printing starts and after it is completed:

### - *Start Adjustment*

This setting feeds out or pulls back a specified length of paper before the printing of a label, ticket or portion of strip starts. The value is entered as dots, where a positive value (i.e. no leading minus sign) feeds out the paper and a negative value (i.e. with a leading minus sign) pulls it back.

### - *Stop Adjustment*

This setting works the same way as the Start Adjustment, but is executed after the printing of a label etc. is completed.

By means of these two settings, you can, for example, control the paper feed so the printing starts at the top of the label and the web can still be torn off between two labels.

*Setup strings, examples:*

```
SETUP "DETECTION,FEEDADJ,STARTADJ,-220" ↵
```

```
SETUP "DETECTION,FEEDADJ,STOPADJ,154" ↵
```

## • Print Window

The area on the paper which can be used for printing ("print window"), is specified by means of three settings, which are all given as a positive number of dots. It is important to set the print window so that no printing can occur outside the paper or ribbon, which may shorten the life of the printhead due to overheating.

### - *X-Start*

Specifies an offset from the innermost dot on the printhead. When the X-Start value is set to 0, the print area starts 1 mm (0.04") from the edge of the paper, that is closest to the printer's centre-line wall. By increasing the X-Start value, you can move the origin (X=0) outwards, making the inner margin wider.

### - *Width*

Specifies the width of the print area, starting from the position of the origin as defined by the X-Start value. Obviously, the sum of the X-Start and Width values must not exceed the width of the printhead (832 dots).

### - *Length*

Specifies the length of the printable area from the origin and along the Y-axis. This value decides the maximum amount of paper fed when using any media type except "Var. length strip" (see Media Type below). In case of labels, tickets, tags, or fixed portions of strip, enter the exact length.

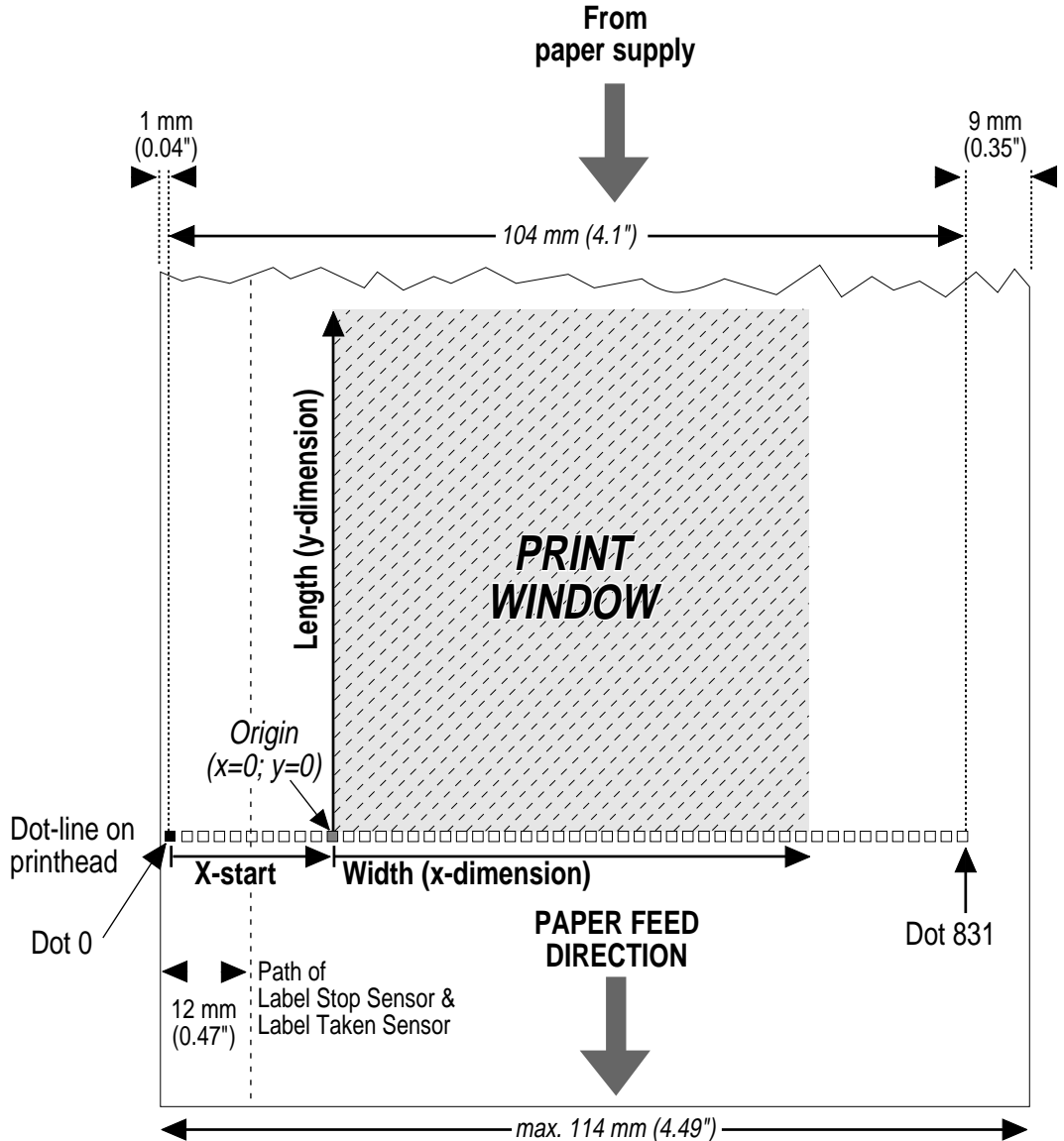


# Print Location Setup, cont'd.

Setup strings, examples:

```

SETUP "SERVICE,MEDIA_SIZE,XSTART,30" ↵
SETUP "SERVICE,MEDIA_SIZE,WIDTH,600" ↵
SETUP "SERVICE,MEDIA_SIZE,LENGTH,800" ↵
    
```



# Media Setup

- **Media Type**

The EasyCoder 301 LinerLess has five media type options, but two of these has no application with linerless media:

- Label with gaps (not for LinerLess media)
- Ticket with marks
- Ticket with gaps (not for LinerLess media)
- Fixed length strip
- Variable length strip

Refer to Appendix 2 for illustrations and specifications of the various types. It is important to specify the correct type, so the paper feed will work correctly and the label stop sensor can detect the front edges of labels, tickets and tags as well as out-of-paper conditions.

*Setup strings, examples:*

```
SETUP "SERVICE,MEDIA_TYPE,TICKET_(w_MARK)" ↵
SETUP "SERVICE,MEDIA_TYPE,FIX_LENGTH_STRIP" ↵
SETUP "SERVICE,MEDIA_TYPE,VAR_LENGTH_STRIP" ↵
```

- **Paper Type**

In order to be compatible with previous Intermec printers, the EasyCoder 301 LinerLess is preset to use a number of standard direct thermal paper qualities. Select the appropriate “Paper Type” setting among those listed in Appendix 2.

To select linerless paper and to obtain the best print quality and printhead lifetime for direct thermal papers, follow the instructions for “New Supplies” below and in the chapter “Printer Setup with the Bar Code Wand”.

*Setup string, example:*

```
SETUP "SERVICE,PRINT_DEFS,PAPER_TYPE,UBI_DT_110" ↵
```

- **New Supplies**

You can send a text string to the printer to indicate the supply type. See Appendix 2 for recommended “New Supplies” settings. This method of setting up the printer is preferred to obtain the best print quality and printhead lifetime.

Instead of using a computer, you can also easily set up the paper type using the Bar Code Wand. The necessary codes are shown in "Printer Setup with the Bar Code Wand" later in this chapter. This gives you the same optimized results as “New Supplies” setup strings.

*In the setup string examples, underscored space characters (as in “PAPER\_TYPE”) indicate mandatory space characters in the command line.*

*Quotation marks (“”) are ASCII 34 dec.*

## Media Setup, cont'd.

- **New Supplies, cont'd.**

Always use Linerless media from Intermec. These have been carefully matched with the printhead. Other media may shorten the life of the printhead.

*Setup string, examples:*

```
SETUP "SERVICE,PRINT_DEFS,NEW_SUPPLIES,GS103" ↵
```

## Print Setup

- **Performance**

This setting controls the print speed:

- Normal            *Nominal speed ≈ 100 mm/sec. (4"/sec.)*
- High              *Nominal speed ≈ 150 mm/sec. (6"/sec.)*

Normal print speed gives the best printout quality for demanding layouts, containing e.g. ladder style bar codes or fine-detailed images. However, high speed gives an acceptable quality for most applications.

*Setup strings, examples:*

```
SETUP "SERVICE,PERFORMANCE,NORMAL" ↵
```

```
SETUP "SERVICE,PERFORMANCE,HIGH" ↵
```

- **Contrast**

This setting controls the darkness of the printing on the paper. The range is **0 – 10**, where 0 is the lightest and 10 is the darkest. To obtain the best printout quality, the contrast should be set to **5** (default) when using “New Supplies” setup strings or a Bar Code Wand for setting up the printer in regard of LinerLess labels.

*Setup string, example:*

```
SETUP "CONTRAST,5" ↵
```

*In the setup string examples, underscored space characters (as in “NEW\_SUPPLIES”) indicate mandatory space characters in the command line.*

*Quotation marks (“ ”) are ASCII 34 dec.*

## Testfeed

The label length is defined as the distance between between gaps, detection slots, or black marks. Measure the actual distance from the rear end of a gap or slot to the start of next gap or slot. In case of black marks, measure the distance between the forward edges of two adjacent marks and subtract the value expressed in dots by 16.

By using the **TESTFEED** command, a blank label is fed out while the label length is automatically measured and stored in the printer's flash memory, and the sensitivity of the label stop sensor is adjusted according to the characteristics of the presently loaded media.

*It is recommended to send a **TESTFEED** command every time you change to a new label/ticket length or media type!*

When using labels/tickets with a length exceeding  $\approx 24$  cm (9.5"), the **TESTFEED** command does not work, but the label length must be set manually using the following setup command.

```
SETUP "SERVICE,TESTFEED,LENGTH,<length in dots>" ↵
```

*Setup string, example:*

```
SETUP "SERVICE,TESTFEED,LENGTH,750" ↵
```

## Printer Setup with Bar Code Wand

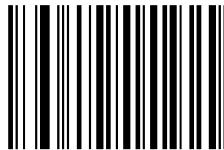
In addition to using Intermec Direct Protocol setup strings, the following setup parameters can also be entered by scanning pre-printed bar codes with a Bar Code wand:

- Serial port setup
- Print setup
- Paper setup

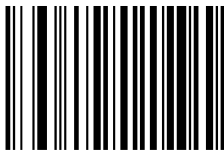
To use a Bar Code wand with the EasyCoder 301 LinerLess:

- 1 Open the side and front covers.
- 2 Plug the Bar Code wand into its socket, to the left of the printhead area.
- 3 Touch the Bar Code wand on the paper containing the bar code to be scanned: the **Power** LED turns yellow.
- 4 Pass the Bar Code wand over the bar code and lift it off the paper. If the bar code has been read correctly, the **Power** LED turns green. If the bar code has not been read correctly, the **Power** LED flashes red before turning green, when you lift the wand.
- 5 If the bar code has not been read correctly, check that the Bar Code wand is correctly connected and try again.

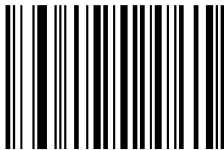
- **Baudrate**



Baudrate = 300



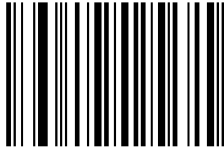
Baudrate = 600



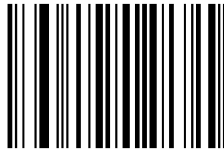
Baudrate = 1200

## Printer Setup with Bar Code Wand, cont'd.

- **Baudrate, cont'd.**



Baudrate = 2400



Baudrate = 4800



Baudrate = 9600

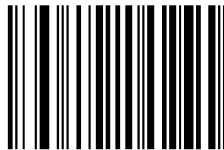


Baudrate = 19200



Baudrate = 38400

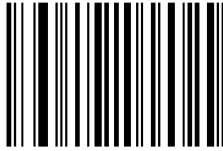
- **Parity**



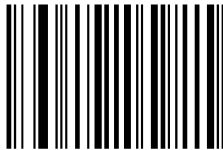
Parity = None

## Printer Setup with Bar Code Wand, cont'd.

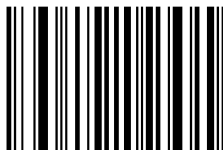
- Parity, cont'd.



Parity = Even



Parity = Odd

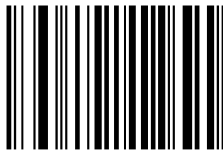


Parity = Mark

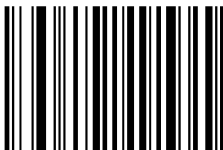


Parity = Space

- Character Length



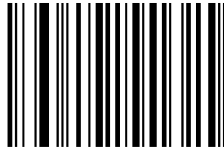
7 ASCII characters 0 - 127  
dec. can be transmitted



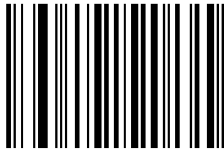
8 ASCII characters 0 - 255  
dec. can be transmitted

# Printer Setup with Bar Code Wand, cont'd.

- Stop Bits

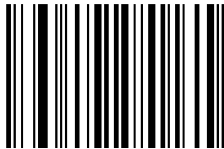


Stop Bits = 1

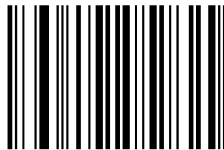


Stop Bits = 2

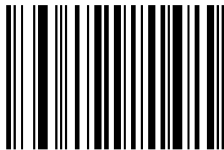
- Data Flow Control



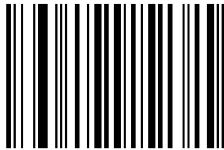
RTS/CTS Enable



RTS/CTS Disable



XON/XOFF, Data from Host Enable

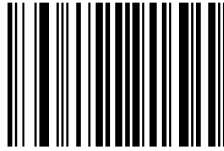


XON/XOFF, Data from Host Disable

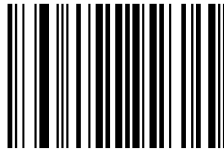


# Printer Setup with Bar Code Wand, cont'd.

- **Data Flow Control, cont'd.**

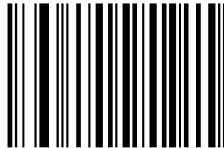


XON/XOFF, Data to Host Enable

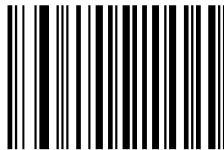


XON/XOFF, Data to Host Disable

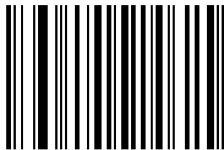
- **New Line Character**



CR (ASCII 13 dec)

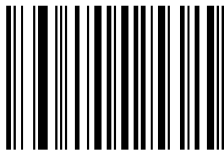


LF (ASCII 10 dec)



CR/LF (ASCII 13 + 10 dec)

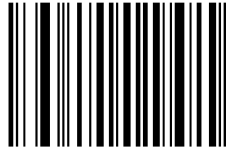
- **Print Speed**



Print speed = Normal

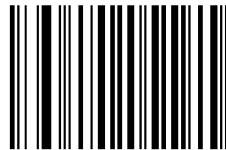
# Printer Setup with Bar Code Wand, cont'd.

- **Print Speed, cont'd.**

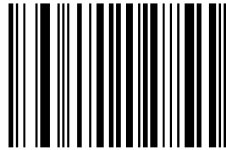


Print speed = High

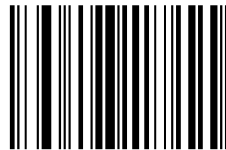
- **Contrast**



Contrast = Low

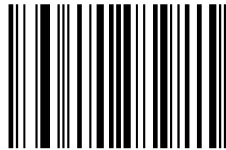


Contrast = Normal



Contrast = High

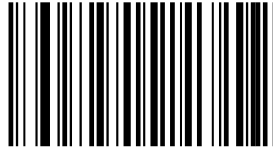
- **Linerless Setup**



Start adjust -220  
Stop adjust +154  
Variable Length Strip  
Paper type GS103

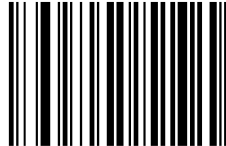
## Printer Setup with Bar Code Wand, cont'd.

- **LinerLess Paper (Europe and U.S.A.)**

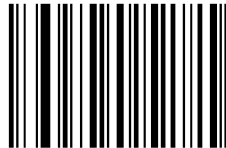


Intermec LinerLess  
(New Supplies setting:  
GS103)

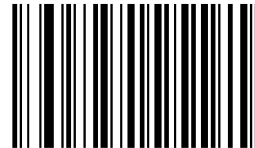
- **Direct Thermal Paper (Europe)**



Economy  
(New Supplies setting:  
GQ90)



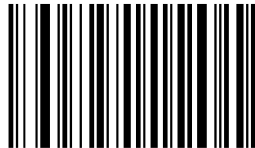
Eco Board  
(New Supplies setting:  
GY90)



Premium  
(New Supplies setting:  
GS100)



Top Board  
(New Supplies setting:  
GT105)



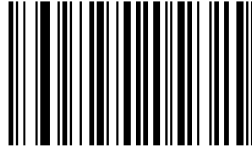
UBI DT 120  
(New Supplies setting:  
GS110)

## Printer Setup with Bar Code Wand, cont'd.

- **Direct Thermal Paper (Europe), cont'd.**

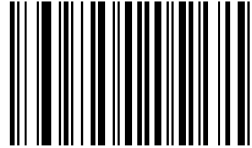


UBI DT110+  
(New Supplies setting:  
GS115)



UBI DT 110++  
(New Supplies setting:  
GS120)

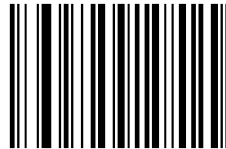
- **Direct Thermal Paper (USA)**



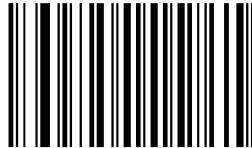
Duratherm II  
(New Supplies setting:  
GT120)



Duratherm Ltg.  
(New Supplies setting:  
GT98)



Duratherm IR  
(New Supplies setting:  
GT85)



Duratherm II tag  
(New Supplies setting:  
GT110)

# Maintenance and Troubleshooting

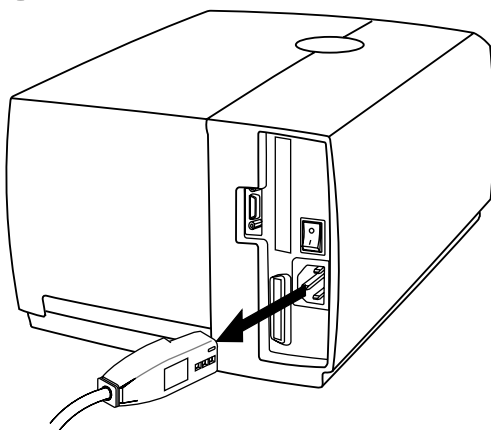
## Cleaning the Case

When you clean the case of the printer, use a soft cloth dampened with water. If the printer is very marked, use a mild detergent.

**Caution:**

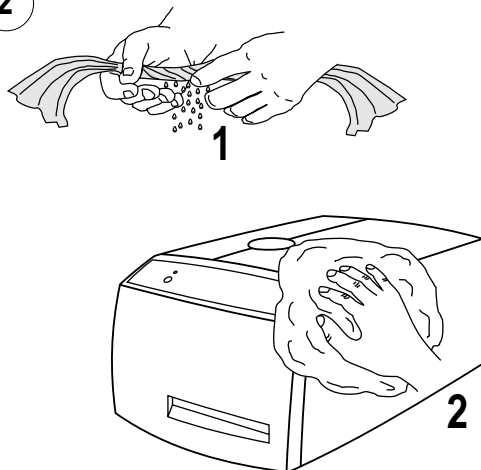
*Do not use abrasive cleaners or solvents as they may damage the surface of the printer.*

1



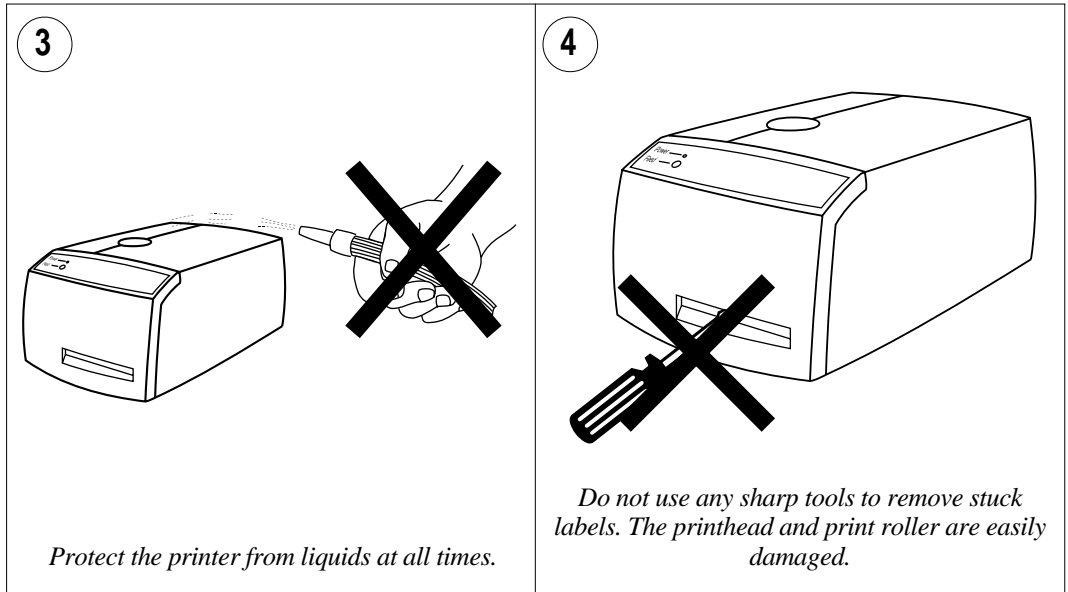
*Always remove the power cord before cleaning.*

2



*Wipe external surfaces with a soft damp cloth and, if necessary, a mild detergent.*

## Cleaning the Case, cont'd.

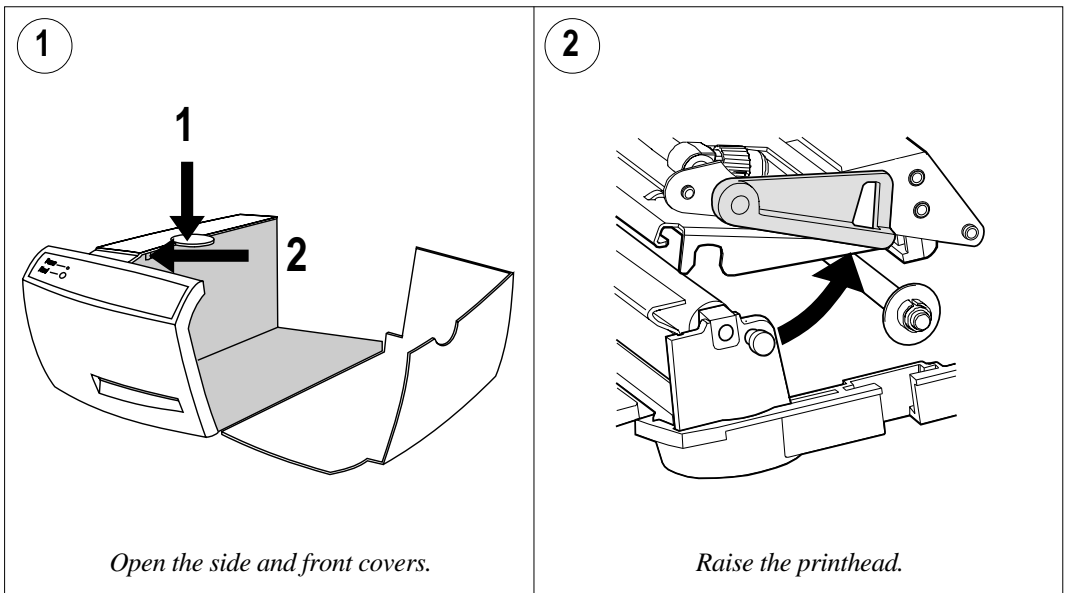


# Cleaning the Printhead

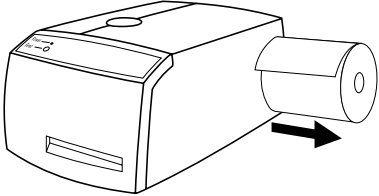
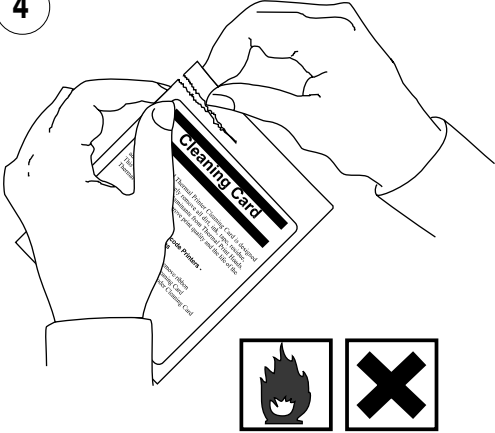
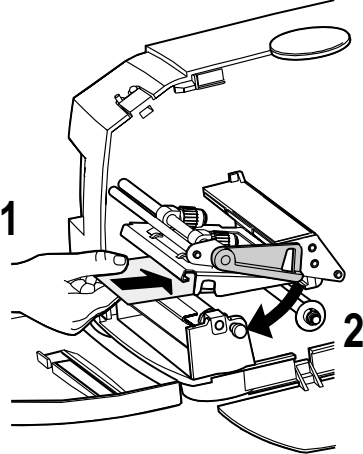
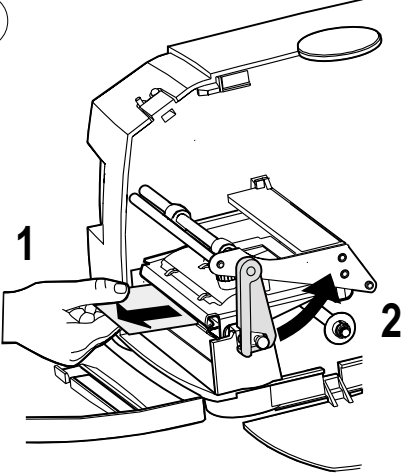
It is important to clean the printhead regularly, preferably each time you load a new roll of paper or labels.

Use the special cleaning card to clean the printhead. Always dispose of the used cleaning card properly.

**Caution:**  
Isopropyl alcohol  
[[CH<sub>3</sub>]<sub>2</sub>CHOH; CAS 67-63-0]  
is a highly flammable,  
moderately toxic and mildly  
irritating substance.



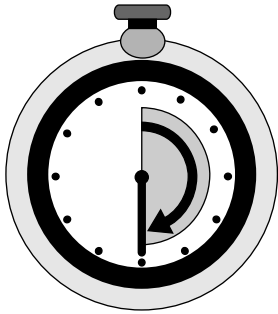
## Cleaning the Printhead, cont'd.

<p>3</p>  <p><i>Remove the paper.</i></p>	<p>4</p>  <p><i>Open the cleaning card. The cleaning card contains isopropyl alcohol - see "Caution" on the previous page.</i></p>
<p>5</p>  <p><i>Push most of the cleaning card under the printhead and lower the printhead.</i></p>	<p>6</p>  <p><i>Pull the cleaning card out and raise the printhead.</i></p>



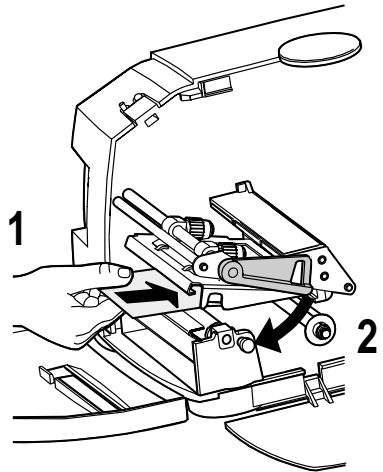
## Cleaning the Printhead, cont'd.

7



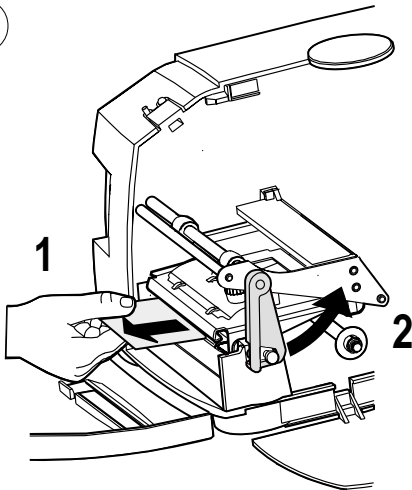
*Wait 30 seconds.*

8



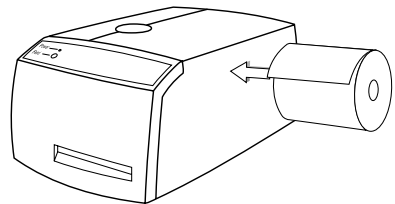
*Push most of the cleaning card under the printhead and lower the printhead.*

9



*Pull the cleaning card out and raise the printhead.*

10



*Allow the cleaned printhead to dry (~2 minutes) before reloading the paper.*

## Cleaning the Print Roller

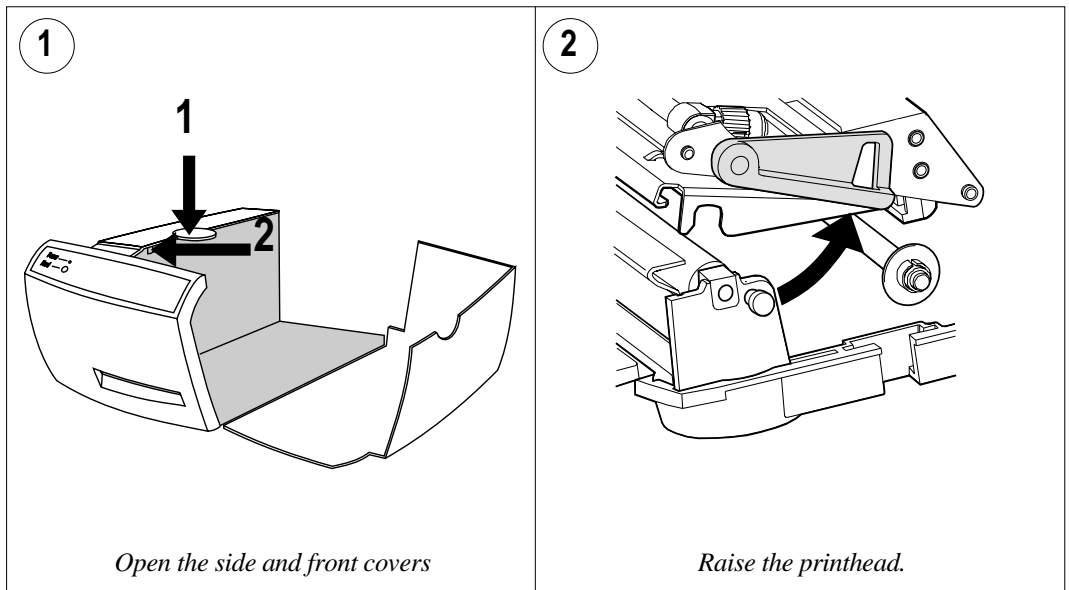
When you clean the printhead with a cleaning card, the print roller is cleaned at the same time. However, if the print roller becomes heavily contaminated, it may be necessary to clean it separately.

Clean the print roller with a soft cloth moistened with isopropyl alcohol.

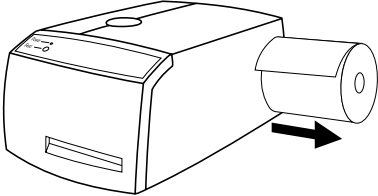
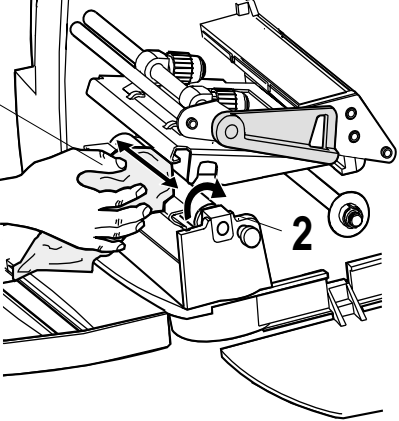
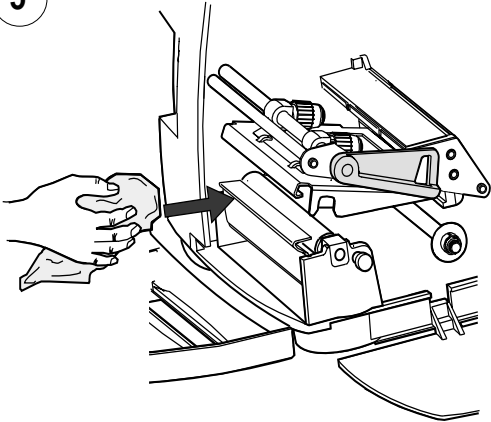
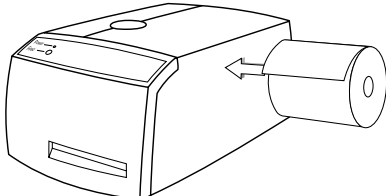
Clean the tear-off edge at the same time as the print roller.

**Caution:**

*Isopropyl alcohol  
[(CH<sub>3</sub>)<sub>2</sub>CHOH; CAS 67-63-0]  
is a highly flammable,  
moderately toxic and mildly  
irritating substance.*



## Cleaning the Print Roller, cont'd.

<p>3</p>  <p><i>Remove the paper</i></p>	<p>4</p>  <p><i>Clean the exposed face of the print roller while rotating it.</i></p>
<p>5</p>  <p><i>Clean the guide plate in front of the print roller.</i></p>	<p>6</p>  <p><i>Replace the paper.</i></p>

## Changing the Printhead

When the printhead becomes worn or damaged, it can easily be changed. The series of pictures below describes how to fit a replacement printhead.

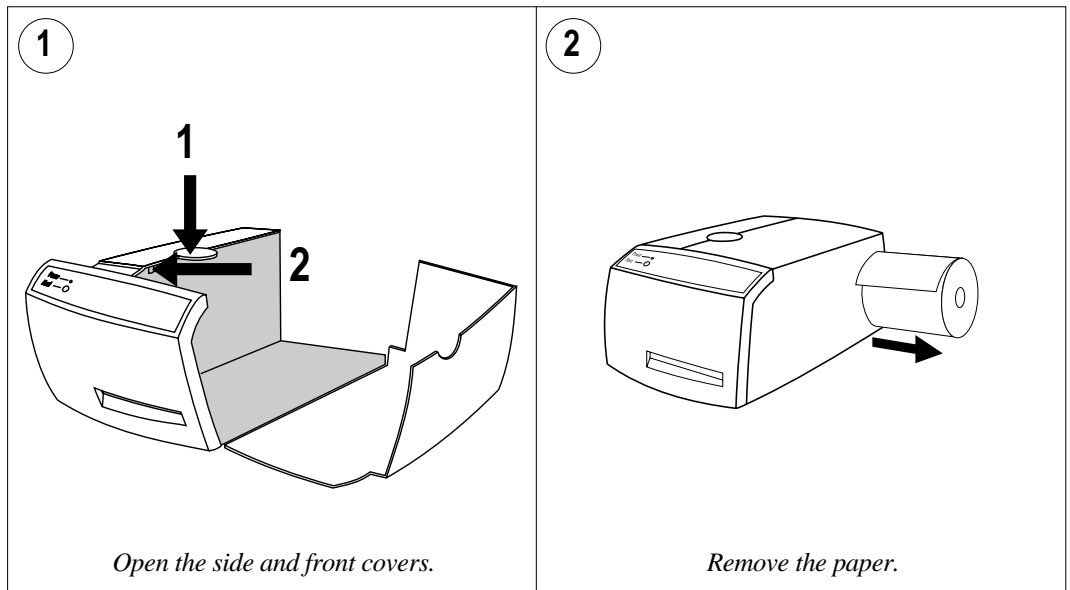
### **IMPORTANT!**

*After completing the physical installation, it is important that the printer is instructed to measure the resistance of the new printhead and adjust itself accordingly. This can be done by sending the following instruction:*

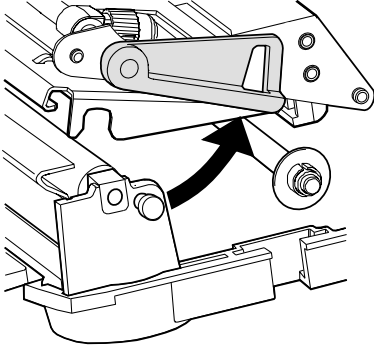
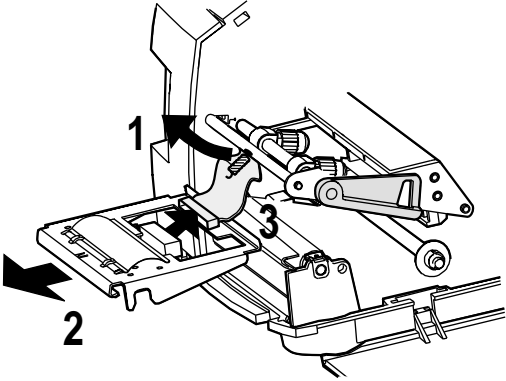
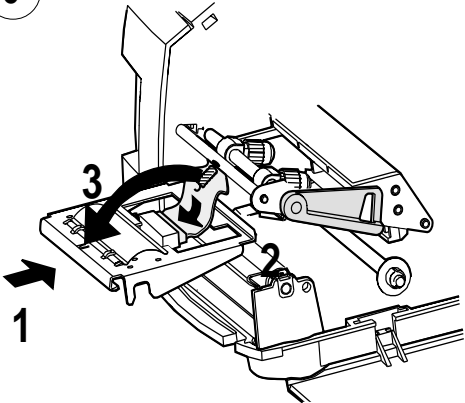
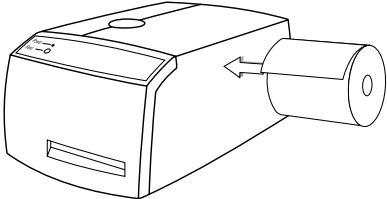
**PRINT HEAD(-7)**

*Another method is to start up the printer in the Test Mode, see “Printing Test Labels” at the end of Chapter 3 “Operation”.*

*Failure to adjust the printer to the printhead resistance may result in inferior printout quality or premature wear-out of the printhead.*



## Changing the Printhead, cont'd.

<p>3</p>  <p><i>Raise the printhead.</i></p>	<p>4</p>  <p><i>Unhook the spring, pull the printhead forward and remove the electrical connector.</i></p>
<p>5</p>  <p><i>Slide in the new printhead, plug in the electrical connector and hook the spring into position.</i></p>	<p>6</p>  <p><i>Replace the paper.</i></p>

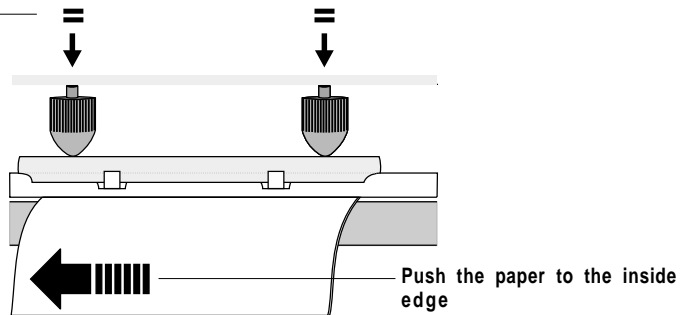
# Adjusting Print-head Pressure

When you print, the thermal printhead must be pressed against the print roller so that heat can be transferred from the printhead to the direct thermal paper. The pressure should also be great enough to provide sufficient friction to drive the paper past the printhead. Too little pressure gives a weak printout quality, while too much pressure can cause unnecessary printhead wear.

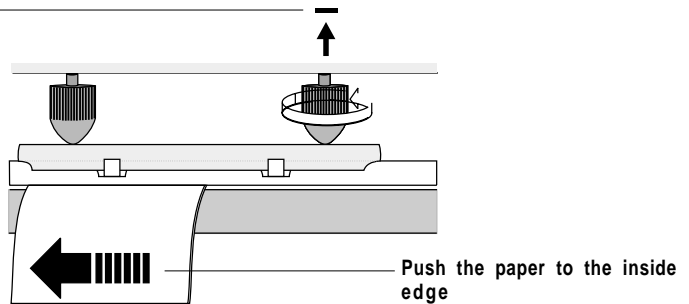
The printer's factory setup is for full width. When you change the media (to thicker, thinner, or narrower), it may be necessary to adjust the printhead pressure, using trial and error.

Do not use any more pressure than is necessary to obtain the desired print quality.

**Full width paper:** \_\_\_\_\_  
 Equal pressure on both sides



**Narrow paper:** \_\_\_\_\_  
 Reduce pressure on the  
 outside  
 edge so that the printhead  
 remains level



# Troubleshooting

The list below is intended to help you to correct possible printout troubles or flaws in printout quality, and to decide when assistance from the Service dept. of the nearest Intermec distributor is required. Note that most problems are due to operating errors or normal wear of the printhead.

Symptom	Possible Cause	Remedy	Refer to
Overall weak printout	Wrong Paper type setup Low Contrast setup Printhead pressure too low Worn printhead Wrong printhead voltage	Change setup Change setup Adjust printhead pressure Replace printhead Replace CPU board	Chapter 5 Chapter 5 Chapter 6 Chapter 6 ◆ Call Service
Printout weaker on one side	Uneven printhead pressure	Adjust outer pressure	Chapter 6
Weak spots	Foreign particles on paper Poor paper quality Worn printhead Worn printhead roller	Clean paper Change paper Replace printhead Check/replace	n.a. Chapter 3 Chapter 6 ◆ Call Service
Overall dark printout	Wrong Paper Type setup Too high Contrast setup value Printhead pressure too high Wrong printhead voltage	Change setup Change setup Adjust both knobs Replace CPU board	Chapter 5 Chapter 5 Chapter 6 ◆ Call Service
Excessive bleeding	Wrong Paper Type setup Contrast setup value too high Printhead pressure too high Faulty energy control	Change setup Change setup Adjust both knobs Replace CPU board	Chapter 5 Chapter 5 Chapter 6 ◆ Call Service
Dark lines along paper web	Foreign objects on printhead	Clean printhead	Chapter 6
White lines along paper web	Printhead dirty Missing dots on printhead	Clean printhead Replace printhead	Chapter 6 Chapter 6
Large part of dot line missing	Wrong X-start or Width setup Failing printhead Failing strobe signal	Change setup Replace printhead Check CPU-board	Chapter 5 Chapter 6 ◆ Call Service
Printout missing along inner edge	Bad paper alignment X-start setup value too low	Adjust Increase	Chapter 3 Chapter 5

# Technical Data

## Printer

<b>EasyCoder 301 LinerLess</b>		
Print Technique	Direct Thermal and LinerLess	
Print Resolution	8 dots/mm (203.2 dots/inch)	
Quick-mount Printhead	Yes	
Maximum Print Width	104 mm (4.09")	
Maximum Media Width	114 mm (4.5")	
Smooth Fonts	Yes	
Print Directions	4	
Maximum Internal Paper Roll Diameter	152 mm (6")	
Dimensions (W x D x H)	236 x 350 x 170 mm (9.3 x 13.78 x 6.7 inches)	
Weight (excluding paper & options)	4.3 kgs (9.4 lbs)	
Ambient Operating Temperature	+5°C – +40°C (+41°F – +104°F)	
Humidity	20 –80% non-condensing	
Sound Emission Level	< 60 dB (A)	
Microprocessor	32 bit	
Firmware	Intermec EasyCoder 301 Direct Protocol v. 2.00	
Label End Sensor	Yes	
Mains Voltage	110-120/220-240V 4/2A 60/50Hz	Build option
PFC Regulation	IEC 61000-3-2	
Maximum Power Consumption	Stand-by 30W; Typical label 70W; Maximum 250W	
Communications Interface Standard	1 x RS 232C Serial and 1 x Centronics Parallel	
Print Speed	100 or 150 mm/sec (4 or 6 inches/sec)	
Bar Code Generators	Depends on Firmware version	
On-board Flash EPROMs	2 x 512 kbytes	
On-Board RAM Memory	512 kbytes	
RS 232C Cable	Optional	
Centronics Parallel Cable	Optional	
Real Time Clock (RTC)	Optional	
Scalable Fonts	Built-in	
Memory Card Slot	1 PCMCIA 5V Type 3, or 2 PCMCIA 5V Type 1 or 2	



# Media Specifications

## Paper Roll Size

### Core

Diameters: 38 mm (1.5") (hanger in bottom position)  
76.2 mm (3") (hanger in top position)

Width: Must not protrude outside the web.

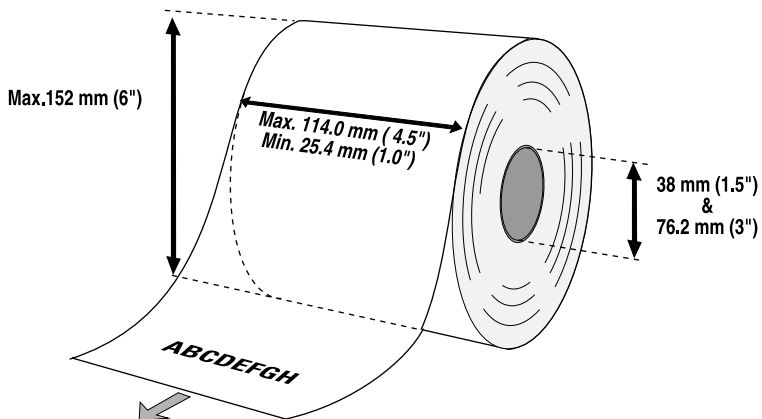
The web must be attached to the core in such a way that the printer can pull the end of the web free.

### Roll

Max. diameter: 152 mm (6")  
Max. width: 114 mm (4.5")  
Min. width: 25.4 mm (1")  
Max. web thickness: 175 $\mu$ m (0.007")

The maximum recommended web thickness is 175 $\mu$ m. A thicker web may be used, but print quality will be reduced. Web stiffness is also important and must be balanced against web thickness to maintain print quality.

Paper rolls should be wound with the printable side facing outwards.



# Paper

## Non-Adhesive Strip



### ⇐ a ⇒ Web Width:

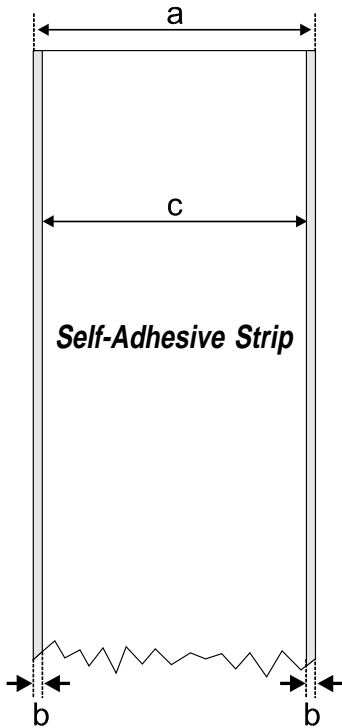
Maximum .....	:	114.0 mm	(4.5")
Minimum .....	:	25.4 mm	(1.00")

### Media type setup:

- Fix length strip
- Var length strip

# Paper, cont'd.

## Self-Adhesive Strip



⇐ **a** ⇒ **Web Width** (including backing paper):  
 Maximum ..... : 114.0 mm (4.5")  
 Minimum ..... : 25.4 mm (1.00")

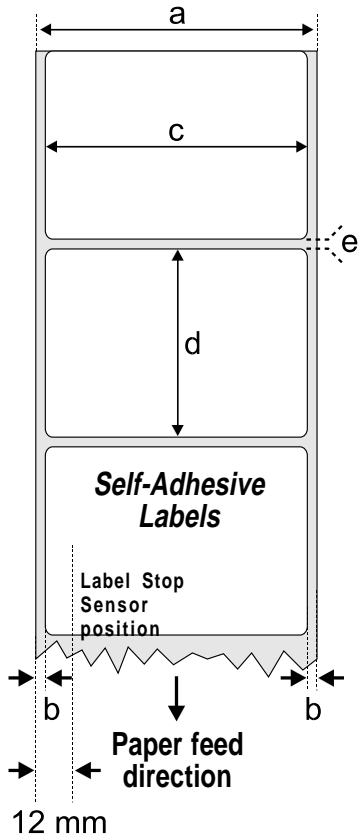
⇐ **b** ⇒ **Backing Paper**  
 The backing paper must not extend more than a total of 1.6 mm (0.06") outside the paper and should protrude equally on both sides.

⇐ **c** ⇒ **Paper Width** (excluding backing paper):  
 Maximum ..... : 112.4 mm (4.44")  
 Minimum ..... : 23.8 mm (0.94")

- Media type setup:**
- Fix length strip
  - Var length strip

# Paper, cont'd.

## Self-Adhesive Labels



⇐ **a** ⇒ **Web Width** (including backing paper):  
 Maximum ..... : 114.0 mm (4.5")  
 Minimum ..... : 25.4 mm (1.00")

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

⇐ **c** ⇒ **Label Width** (excluding backing paper):  
 Maximum ..... : 112.4 mm (4.44")  
 Minimum ..... : 23.8 mm (0.94")

⇐ **d** ⇒ **Label Length:**  
 Minimum ..... : 10 mm (0.39")

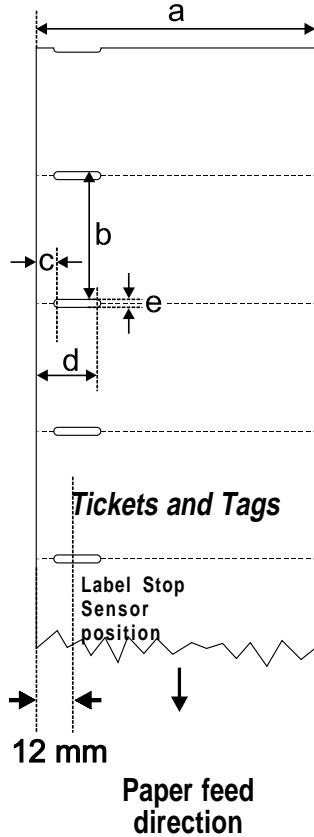
⇐ **e** ⇒ **Label Gap:**  
 Maximum ..... : 10.0 mm (0.39")  
 Recommended: ..... : 1.6 mm (0.06")  
 Minimum ..... : 1.2 mm (0.05")

The Label Stop Sensor must be able to detect the extreme front and rear edges of the labels. It is positioned 12 mm from the left edge of the media, so do not use labels with a large inner corner radius.

**Media type setup:**  
 • Label (w gaps)

# Paper, cont'd.

## Tickets with Gap



⇐ a ⇒ **Web Width:**

Maximum .....	114.0 mm	(4.5")
Minimum .....	25.4 mm	(1.00")

⇐ b ⇒ **Copy Length:**

Min. length (between slots) .....	10 mm	(0.39")
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⇐ c ⇒ **Detection Slit Start:**

The distance between the inner edge of the paper web and the start of the detection gap (excl. corner radii) must be:

Minimum .....	6 mm	(0.24")
Maximum .....	9 mm	(0.35")

⇐ d ⇒ **Detection Slit End:**

The distance between the inner edge of the paper web and the end of the detection gap (excl. corner radii) must be:

Minimum .....	15 mm	(0.59")
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⇐ e ⇒ **Detection Slit Height:**

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

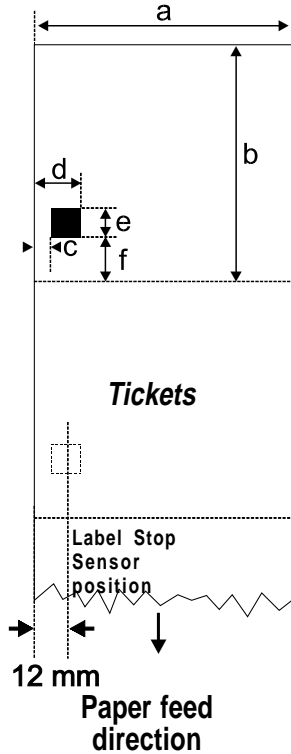
**Media type setup:**

- Ticket (w gaps)

*Do not allow the detection slit to perforate the edge of the web, as this may cause the web to split, resulting in a paper jam.*

# Paper, cont'd.

## Tickets with Black Mark



⇐ a ⇒ **Web Width:**

Maximum .....	114.0 mm	(4.5")
Minimum .....	25.4 mm	(1.00")

⇐ b ⇒ **Copy Length:**

Minimum .....	20 mm	(0.8")
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⇐ c ⇒ **Black Mark Offset:**

The distance between the inner edge of the paper web and the inner edge of the black mark must be:

Maximum .....	9.5 mm	(0.37")
Minimum .....	No restriction	

⇐ d ⇒ **Black Mark End:**

The distance between the inner edge of the paper web and the outer edge of the black mark must be:

Maximum .....	No restriction
Minimum .....	25.4 mm (1.0")

⇐ e ⇒ **Black Mark Height:**

Common .....	12.5 mm	(0.5")
Minimum .....	5.0 mm	(0.2")

⇐ f ⇒ **Black Mark Y-Position:**

The black mark should be as close to the front edge of the ticket as possible. Use a negative *stopadjust* value to control the paper feed, so that the tickets can be properly torn or cut off.

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

**Media type setup:**

- Ticket (w mark)

*Do not allow the perforations to break the edge of the web, as this may cause the web to split, resulting in a paper jam.*

# New Supplies and Paper Type Settings

<b>LINERLESS PRINTING (Europe &amp; USA)</b>				
Label name	New Supplies setting	Paper Type setting	Max. rec. print speed DIR 1 & 3	Max. rec. print speed DIR 2 & 4
Intermec LinerLess	GS103	see note	Normal	Normal
<i>Note: The new supplies setting GS103 approximately corresponds to the paper type setting UBI DT 110.</i>				

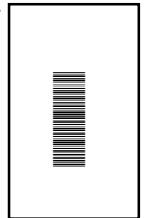
<b>DIRECT THERMAL PRINTING (Europe)</b>				
Label name	New Supplies setting	Paper Type setting	Max. rec. print speed: DIR 1 & 3	Max. rec. print speed: DIR 2 & 4
Economy	GQ90	–	High	Normal
Eco Board	GY90	–	Normal	Normal
Premium	GS100	UBI DT 110	High	Normal
Top Board	GT105	–	Normal	Normal
UBI DT 110 + 10%	GS110	UBI DT 120	Normal	Normal
UBI DT 110 + 15%	GS115	UBI DT 110+	Normal	Normal
UBI DT 110 + 30%	GS120	UBI DT 110++	Normal	Normal

<b>DIRECT THERMAL PRINTING (USA)</b>				
Label name	New Supplies setting	Paper Type setting	Max. rec. print speed DIR 1 & 3	Max. rec. print speed DIR 2 & 4
Duratherm II	GT120	–	Normal	Normal
Duratherm Ltg	GT98	–	Normal	Normal
Duratherm IR	GT85	–	Normal	Normal
Duratherm II Tag	GT110	–	Normal	Normal

*DIR 1 & 3:  
(picket fence  
bar code)*



*DIR 2 & 4:  
(ladder  
bar code)*



# Interfaces

## Parallel Interface

The EasyCoder 301 LinerLess has two interfaces: Parallel Centronics and Serial RS 232.

### Standard

IEEE 1284-I compliant

### Interface Cable

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

Printer end: 36 pin female Centronics connector.

Pin	Function	Transmitter
1	/Strobe	Host
2-9	Data 0-7	Host
10	Ack	Printer
11	Busy	Printer
12	Error	Printer
13	Select	Printer
14	Autofd	Host
15	N/C	
16	Signal ground	
17	Chassis ground	
18	Logic high	Printer
19-30	Signal ground	
31	/Init	Host
32	/Fault	Printer
33-35	N/C	
36	/Selectin	Host



## Serial Interface

The EasyCoder 301 LinerLess has two interfaces: Parallel Centronics and Serial RS 232.

### Protocol

9600 baud, No parity, 8 data bits, 1 stop bit (default).

To change the serial interface settings, use the **SETUP** command or read the suitable setup bar codes in chapter 5 using the bar code wand.

### Interface Cable

Computer end: Depends on type of host computer.  
*IBM-XT: DB25 female connector*  
*IBM-PS2: DB25 female connector*  
*IBM-AT: DB9 female connector*

Printer end: DB9 male connector.

Host		EasyCoder 301 LinerLess			Host	
Signal	DB-9	DB-9	Signal	DB9	DB-25	Signal
		1	+5V 150mA <sup>1</sup>	1		
RXD	2	2	TXD	2	3	RXD
TXD	3	3	RXD	3	2	TXD
DTR	4	4	–	4	20	DTR
GND	5	5	GND	5	7	GND
DSR	6	6	RDY	6	6	DSR
RTS	7	7	CTS	7	4	RTS
CTS	8	8	RTS	8	5	CTS
		9	–	9		

<sup>1</sup>/. Short-circuit protected.