Installation Instructions

P/N 1-960557-00
Edition 1
September 2001

Industrial/EasyLAN 100i Interface Kit for XP

Intermec
Technologies Corporation

A UNOVA Company

1. Introduction

Contents

1. Introduction
Table of Contents 1
Copyright Information 2
Trademarks 2
Description 3
Firmware Requirements 3
Installation Kit 3

2. Installation
Step-by-Step Instructions 4

3. Configuration and Connection
Industrial Interface 8
EasyLAN 100i Interface 11

4. EasyLAN 100i Setup
Assigning an IP Address 12
Reading an Assigned IP Address 15
Setup Mode Overview 16
Printing Test Label #6 17
Checking the Communication 18

Industrial/EasyLAN 100i Interface Kit for XP Installation Instructions
Edition 1, September 2001
Part No. 1-960557-00

Description

The Industrial/EasyLAN 100i interface kit makes it possible to provide an EasyCoder 501 XP or 601 XP with both an Industrial interface and an Ethernet interface.

The Industrial interface contains eight IN and eight OUT digital ports with optocouplers, plus four OUT ports with relays.

The status of the ports can be read using PORTIN functions and the OUT ports can be set using PORTOUT ON/OFF statements (see *Intermec Fingerprint v7.60, Reference Manual*). Thus, it is possible to deign Intermec Fingerprint programs which control not only the printer but also various external devices in, for example, a production line. The digital IN ports can read the status off various sensors and the program can switch control lamps on or off, open or close gates, and start or stop conveyor belts accordingly using the relays and the digital OUT ports. Note that this version of the Industrial Interface Board has no serial port.

In addition to the Industrial interface, an EasyCoder 501 XP or 601 XP can be fitted with an EasyLAN 100i Ethernet interface. The EasyLAN 100i interface board provides you with the most advanced network management capabilities ever offered. The EasyLAN 100i interface is designed to accommodate your network. With the most robust network systems support ever offered your label printers will be up and running on your network in minutes.

Save time, space and money by putting the printer where you need it. No need for a dedicated PC work-station or long serial or parallel cables. Simply locate your label printer in the most efficient place for your business, connect your RJ-45 network cable to the printer and begin printing. Now you can print from workstations or servers anywhere across the LAN, WAN, Intranet, or Internet. In addition, you can monitor the status of print jobs from your Intranet or Internet, any place any time using your favorite web browser.

Now you can take full advantage of the incredible bandwidth of your 100baseTX Fast Ethernet network infrastructure. When you combine the EasyLAN ETRAX 100 network processor with the 32 bit RISC processor of the EasyCoder 501XP or 601XP, print jobs, including complex labels with bar codes, text and graphics, are sent to the printer at lightning speed providing you with full rated printer performance.

When your business depends on your label printer, you can depend on the Intermec EasyLAN 100i Ethernet network interface board to provide you with dependable service and advanced management capabilities.

Firmware Requirements

Printer: EasyCoder 501 XP or EasyCoder 601 XP.
Firmware: Intermec Fingerprint v7.60 or later.

Installation Kit

The kit contains:

- One Industrial Interface Board.
- One EasyLAN 100i Ethernet Interface Board
- One flat cable
- One CD-ROM with software and manuals
- This Installation Instructions booklet.

The only tool required for the installation is a #T10 Torx screwdriver.

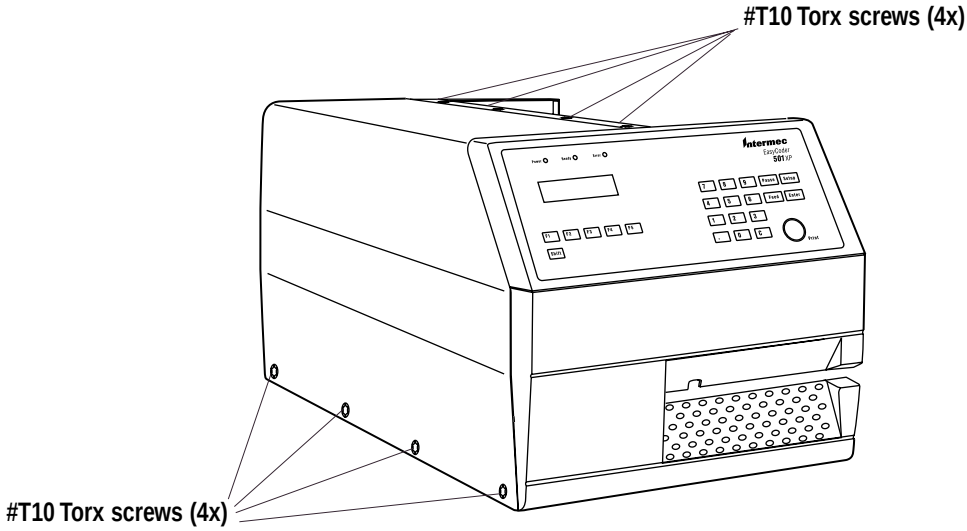
2. Installation

Step-by-Step Instructions

This description applies to Intermec EasyCoder 501 XP and Intermec EasyCoder 601 XP. Illustrations show an EasyCoder 501 XP.

Warning!
The electronics compartment contains high voltage components and wires. Do not open the electronics compartment before the printer is switched off and safely disconnected from any AC supply.

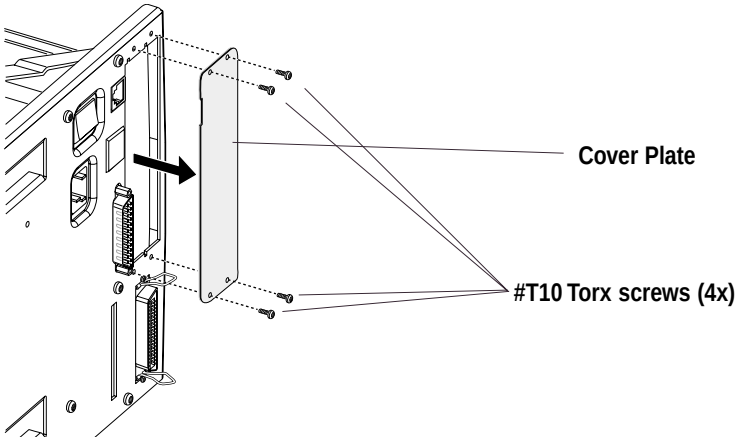
- Open the right-hand door.
- Remove the four #T10 Torx screws along the lower edge of the cover over the electronics compartment.
- Remove the four #T10 Torx screws that hold the upper edge of the same cover.



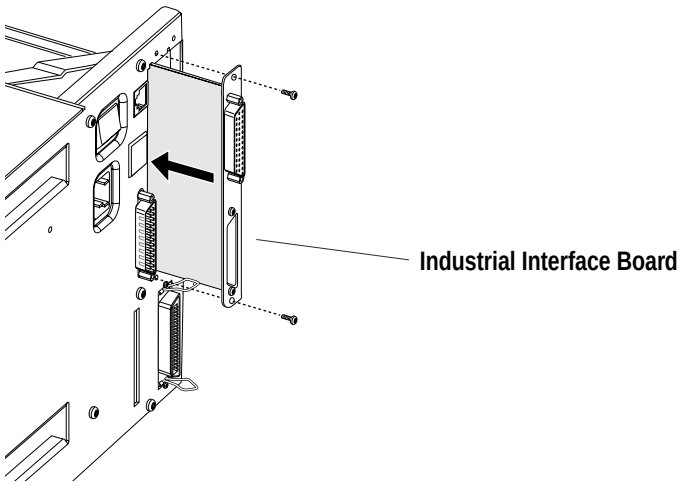
- Remove the cover and put it aside on a soft cloth or similar to avoid scratches.

Step-by-Step Instructions, cont.

- Remove the four #T10 Torx screws that hold the interface cover plate above the parallel interface connector on the printer's rear plate. Remove the cover plate.

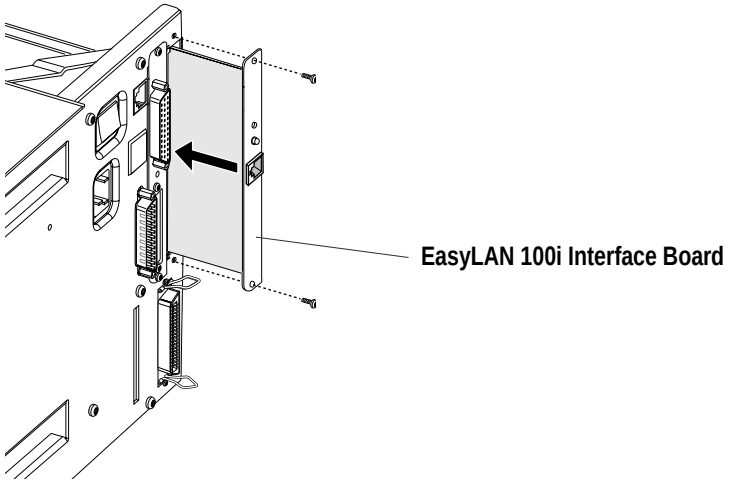


- Save the cover plate for possible later use. Keep the screws.
- Insert the Industrial Interface Board into the slot previously covered by the cover plate. It does not matter in position (left/right) you fit the two boards, but we recommend to fit the Industrial interface board to the left and the EasyLAN 100i interface board to the right (as seen from behind) for easiest access to the Test button on the EasyLAN 100i interface board.
- Check that the top and bottom edges of the board fit into the two square cut-outs in the rear plate.

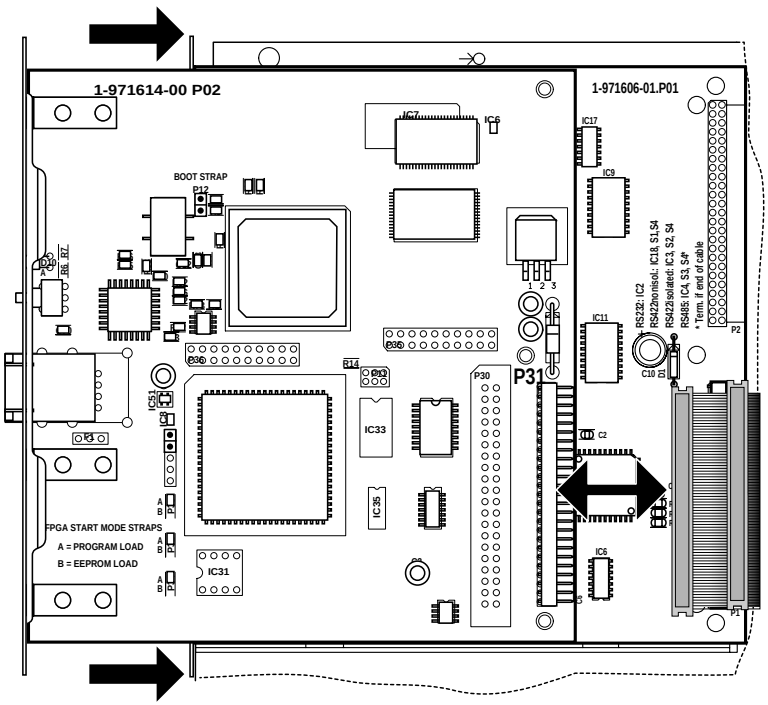


Step-by-Step Instructions, cont.

- Insert the EasyLAN 100i interface board with the components facing right, as seen from behind. Check that the top and bottom edges of the interface board fit between the two remaining cut-outs in the rear plate.

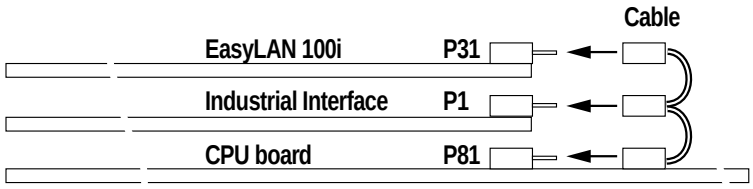


- Attach the interface boards to the printer's rear plate using the four #T10 Torx screws that were left over when you removed the original cover plate.
- Remove the existing cable from P81 on the CPU board. Connect the cable included in the kit from **P81** on the CPU board via **P1** on the Industrial interface board to **P31** on the EasyLAN 100i interface board.

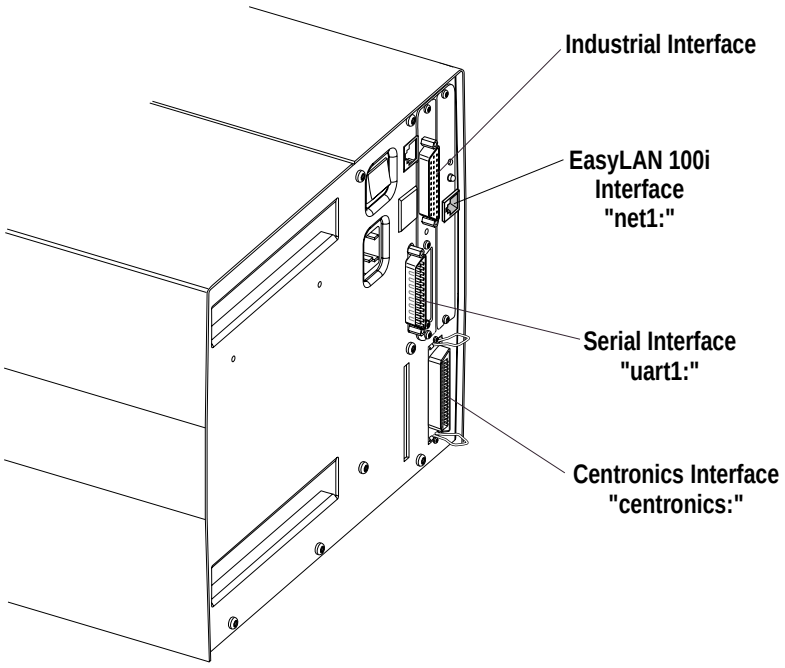


Step-by-Step Instructions, cont.

- This diagram shows how the boards are connected.



- Put back the cover over the electronics compartment. Press firmly to compress the leaf springs along the front and rear edges of the electronics compartment.
- Connect the power cord.
- Now you have one Industrial interface and one EasyLAN 100i interface connector on the printer's rear plate in addition to the standard serial interface "uart1:" and the standard parallel interface "centronics:". Connect the interface cables and switch on the power.



3. Configuration and Connection

Industrial Interface

The Industrial Interface provides:
- 8 digital IN ports with optocouplers (Opto In)
- 8 digital OUT ports with optocouplers (Opto Out)
- 4 OUT ports with relays (Relay Out)

The Industrial Interface has no straps or circuits to be fitted or removed. All signals are available on a female DB-44pin connector and the various ports are controlled by the Intermec Fingerprint instructions PORTIN and PORTOUT ON/OFF (see *Intermec Fingerprint, v7.xx, Reference ManuaL*).

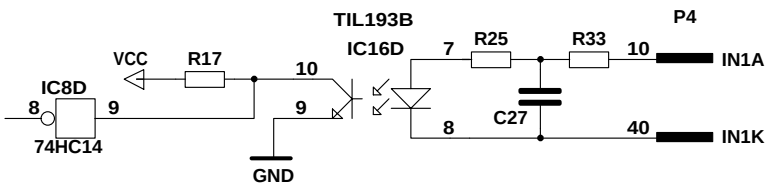
Digital Opto In

The status of the digital IN ports 101-108 can be read by means of PORTIN functions. If a current is led through the optocoupler of the port, PORTIN returns the value -1 (true), else the value 0 (false.)

Signal	Description	Min,	Typical	Max.
Vin [High]	Input Voltage High	10V	24V	40V
Vin [Low]	Input Voltage Low	-1V	0V	1V

Connector Configuration

Pin	Signal Name	Description	Fingerprint Ref. No.
10	IN1A	Anode Opto In Channel 1 +	101
40	IN1K	Cathode Opto In Channel 1 -	
26	IN2A	Anode Opto In Channel 2 +	102
11	IN2K	Cathode Opto In Channel 2 -	
41	IN3A	Anode Opto In Channel 3 +	103
27	IN3K	Cathode Opto In Channel 3 -	
12	IN4A	Anode Opto In Channel 4 +	104
42	IN4K	Cathode Opto In Channel 4 -	
28	IN5A	Anode Opto In Channel 5 +	105
13	IN5K	Cathode Opto In Channel 5 -	
43	IN6A	Anode Opto In Channel 6 +	106
29	IN6K	Cathode Opto In Channel 6 -	
14	IN7A	Anode Opto In Channel 7 +	107
44	IN7K	Cathode Opto In Channel 7 -	
30	IN8A	Anode Opto In Channel 8 +	108
15	IN8K	Cathode Opto In Channel 8 -	



Simplified schematics of a digital IN port.

Industrial Interface, cont.

Digital Opto Out

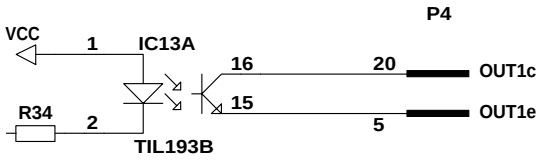
The current to each optocoupler of the digital OUT ports 221-228 can be turned on and off by means of PORTOUT ON/OFF statements.

The status of the ports can be read by means of PORTIN functions. If a current is led through the optocoupler of the port, PORTIN returns the value -1(true), else the value 0 (false.)

Signal	Description	Max.
Vceo	Collector-Emitter breakdown voltage	35V
Veco	Emitter-Collector breakdown voltage	7V
	Collector Current	15 mA
Vog	Output to ground (optocoupler)	100V

Connector Configuration

Pin	Signal Name	Description	Fingerprint Ref. No.
20	Out1c	Collector Opto Out Channel 1	221
5	Out1e	Emitter Opto Out Channel 1	
35	Out2c	Collector Opto Out Channel 2	222
21	Out2e	Emitter Opto Out Channel 2	
6	Out3c	Collector Opto Out Channel 3	223
36	Out3e	Emitter Opto Out Channel 3	
22	Out4c	Collector Opto Out Channel 4	224
7	Out4e	Emitter Opto Out Channel 4	
37	Out5c	Collector Opto Out Channel 5	225
23	Out5e	Emitter Opto Out Channel 5	
8	Out6c	Collector Opto Out Channel 6	226
38	Out6e	Emitter Opto Out Channel 6	
24	Out7c	Collector Opto Out Channel 7	227
9	Out7e	Emitter Opto Out Channel 7	
39	Out8c	Collector Opto Out Channel 8	228
25	Out8e	Emitter Opto Out Channel 8	



Simplified schematics of a digital OUT port.

Industrial Interface, cont.

Relay Out

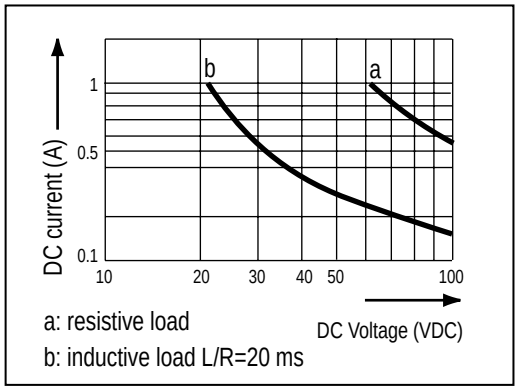
The relays of the OUT ports 201-204 can be individually activated by means of PORTOUT ON/OFF statements.

The status of the ports can be read by means of PORTIN functions. If a relay is activated, PORTIN returns the value -1 (true), else the value 0 (false.)

Max AC Load Breaking Capacity

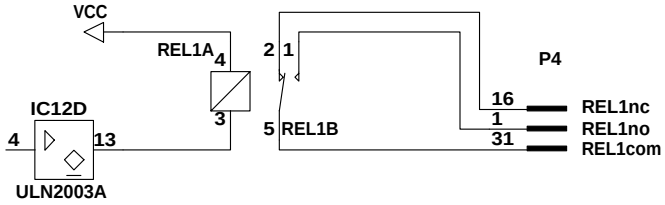
Signal	Description	Max.
I	Current	1A
Psw AC	Switching power	100VA AC
Usw AC	Switching voltage	100V AC

Max DC Load Breaking Capacity



Connector Configuration

Pin	Signal Name	Description	Fingerprint Ref. No.
16	REL1nc	Relay 1 Normally Closed	201
1	REL1no	Relay 1 Normally Open	
31	REL1com	Relay 1 Common	
17	REL2nc	Relay 2 Normally Closed	202
2	REL2no	Relay 2 Normally Open	
32	REL2com	Relay 2 Common	
18	REL3nc	Relay 3 Normally Closed	203
3	REL3no	Relay 3 Normally Open	
33	REL3com	Relay 3 Common	
19	REL4nc	Relay 4 Normally Closed	204
4	REL4no	Relay 4 Normally Open	
34	REL4com	Relay 4 Common	

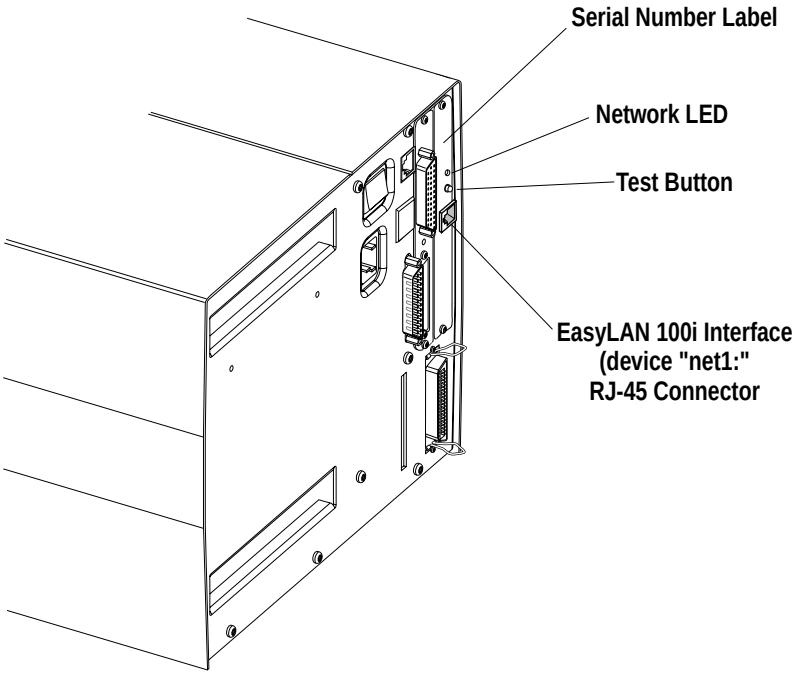


Simplified schematics of a relay OUT port.

EasyLAN 100i Interface

Follow the instructions below to connect the printer to the network via the EasyLAN 100i interface board:

- Using a category 5 unshielded twisted par cable (or better), connect the EasyLAN 100i interface board to your Local Area Network (LAN).
- Refer to Chapter 4 for instructions on how to set up the EasyLAN 100i interface.



4. EasyLAN 100i Setup

Assigning an IP Address

Always consult your network administrator before setting the IP address!

There are two main methods for assigning an IP address:

- Via the printer's built-in keyboard and the Setup Mode.
  This method is described in this chapter.
- Remotely from the host computer.
  This method is described in the Intermec EasyLAN 100i User's Manual, which can be found in the CD-ROM included in the kit.

Setting the IP address manually from the Setup Mode

Before starting this procedure, ask your network administrator for the following settings:
- IP address
- Netmask
- Default router

- Press the **Setup** key on the printer's built-in keyboard. This message appears in the display window:

```
SETUP:
SER-COM, UART1
```

- Press the **F4** key and the following message appears:

```
SETUP:
NETWORK
```

- Press the **Enter** key. The display shows:

```
NETWORK:
IP SELECTION
```

- Press the **Enter** key. The display shows one of the following messages:

```
IP SELECTION:
DHCP
```

```
BOOTP
```

```
RARP
```

```
MANUAL
```

  Use the **F4** or **F5** key to scroll in this loop of options. When **Manual** is displayed, press the **Enter** key. The option you have selected will appear first next time you enter this loop.

- The display shows:

```
NETWORK:
IP ADDRESS
```

- Press the Enter key. The display shows for example:

```
IP ADDRESS:
192.168.1.79
```

- Use the numeric keys and the period key to enter the desired IP address. (The **C** key clears the last entered digit.) When finished, press the **Enter** key.

Assigning an IP Address, cont.

```
NETWORK:
NETMASK
```

- Press the **Enter** key. The display shows for example:

```
NETMASK:
255.255.255.0
```

- Similar to the IP address, enter the desired netmask, then press the **Enter** key.

```
NETWORK:
DEFAULT ROUTER
```

- Press the **Enter** key. The display shows for example:

```
DEFAULT ROUTER:
192.168.1.1
```

- Similar to the IP address and netmask, enter the address of the default router (gateway), then press the **Enter** key.

```
SETUP:
NETWORK
```

- Press the Setup key to leave the Setup Mode. Now the printer is logically connected to your local network (LAN).

Setting the IP address automatically from the Setup Mode

In addition to setting the IP address manually, as described above, there are three methods for making the network server automatically assign an IP address for your EasyLAN 100i printer.
- DHCP
- BOOTP
- RARP

Method	UNIX	Windows	Comments
DHCP	X	X	Automatic but **temporary** assignment of IP addresses from a central pool. The IP address may change unexpectedly, for example after a power off.
BOOTP	X		Similar to RARP, although can operate on the entire network.
RARP	X		Downloads the IP address automatically.

- Press the **Setup** key on the printer's built-in keyboard. This message appears in the display window:

```
SETUP:
SER-COM, UART1
```

- Press the **F4** key and the following message appears:

```
SETUP:
NETWORK
```

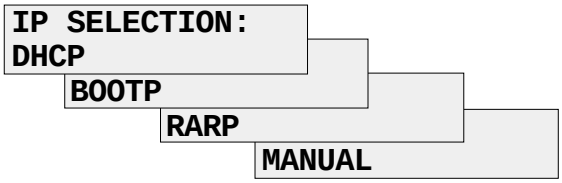
- Press the **Enter** key. The display shows:

```
NETWORK:
IP SELECTION
```

Assigning an IP Address, cont.

Choosing the "Manual" option will disable DHCP, BOOTP, or RARP.

- Press the **Enter** key. The display shows one of the following messages:



  Use the **F4** or **F5** key to scroll in this loop of options. When **DCHP**, **BOOTP**, or **RARP** is displayed, press the **Enter** key. By selecting DCHP, BOOTP, or RARP, that option will be enabled, which you can see if you open the printer's home page (*Configuration;Network Interface;TCP/IP*). The option you have selected will appear first next time you enter this loop.

- The display shows:

```
IP SELECTION:
IP ADDRESS
```

- Press the **Enter** key. The display shows for example:

```
NETWORK:
IP ADDRESS
```

- Press the **Enter** key. The display shows for example:

```
IP ADDRESS:
192.168.1.79
```

- Read the automatically assigned IP address. When ready, press the **Enter** key.

```
NETWORK:
NETMASK
```

- Press the **Enter** key. The display shows for example:

```
NETMASK:
255.255.255.0
```

- Read the automatically assigned netmask address. When ready, press the **Enter** key.

```
NETWORK:
DEFAULT ROUTER
```

- Press the **Enter** key. The display shows for example:

```
DEFAULT ROUTER:
192.168.1.1
```

- Read the automatically assigned default router address. When ready, press the **Enter** key.

```
SETUP:
NETWORK
```

- Press the Setup key to leave the Setup Mode. Now the printer is logically connected to your local network (LAN).

Reading an Assigned IP Address

If you want to read an IP address that has already been assigned—either manually or automatically—without changing any settings, proceed as follows:

- Press the **Setup** key on the printer's built-in keyboard. This message appears in the display window:

```
SETUP:
SER-COM, UART1
```

- Press the **F4** key and the following message appears:

```
SETUP:
NETWORK
```

- Press the **Enter** key. The display shows:

```
NETWORK:
IP SELECTION
```

- Press the **F5** key. The display shows:

```
NETWORK:
IP ADDRESS
```

- Press the **Enter** key. The display shows for example:

```
IP ADDRESS:
192.168.1.79
```

- Read the IP address. When ready, press the **Enter** key.

```
NETWORK:
NETMASK
```

- Press the **Enter** key. The display shows for example:

```
NETMASK:
255.255.255.0
```

- Read the netmask address. Then, press the **Enter** key.

```
NETWORK:
DEFAULT ROUTER
```

- Press the **Enter** key. The display shows for example:

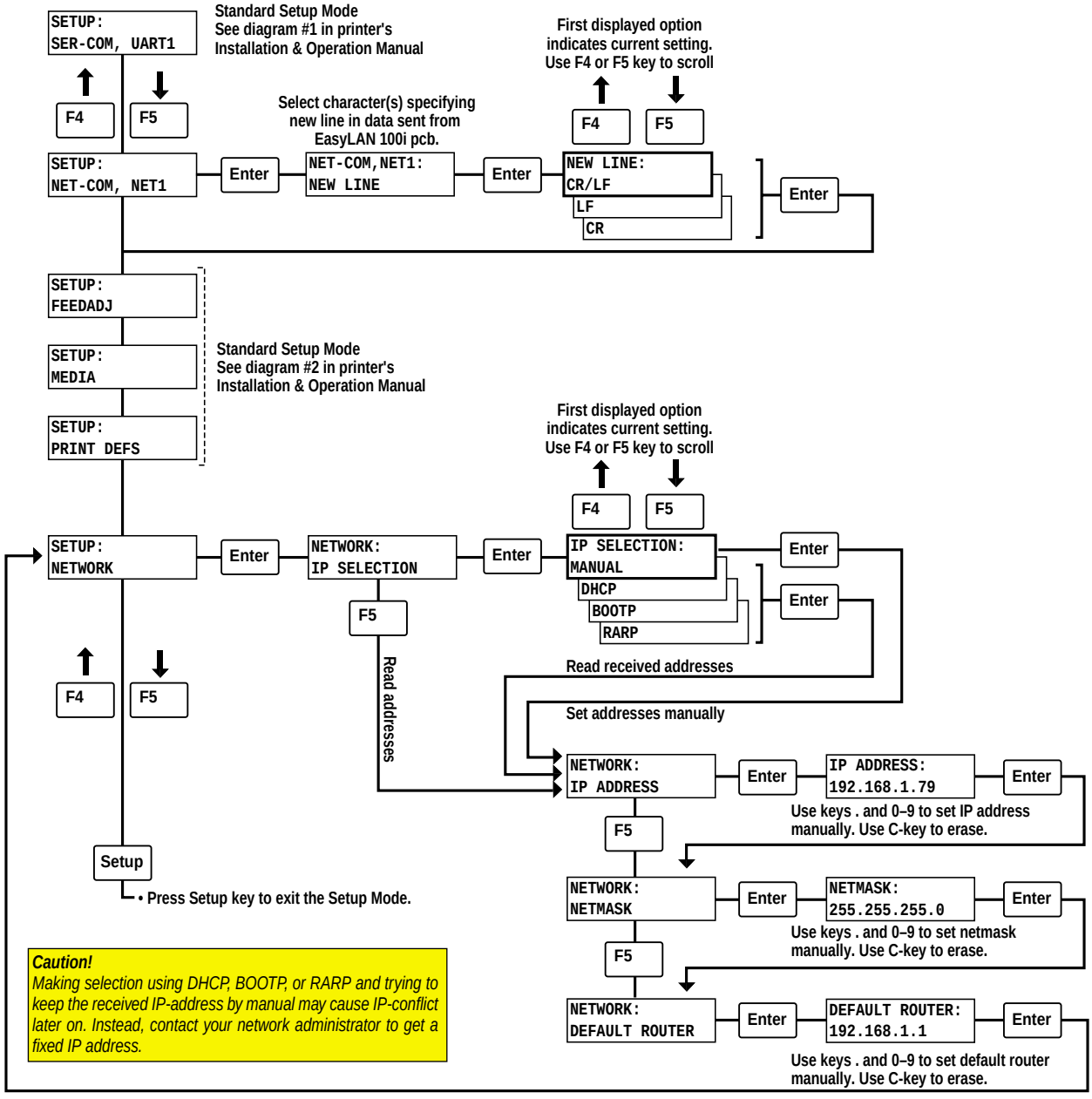
```
DEFAULT ROUTER:
192.168.1.1
```

- Read the default router address. Then, press the Setup key to leave the Setup Mode.

Setup Mode Overview

The diagram below illustrates the hierarchy of setup options that are added to the Setup Mode when an EasyLAN 100i interface board is installed in the printer.

Like most other options in the Setup Mode, these options can be changed using setup strings and files or read using SETUP WRITE statements.



Caution!
Making selection using DHCP, BOOTP, or RARP and trying to keep the received IP-address by manual may cause IP-conflict later on. Instead, contact your network administrator to get a fixed IP address.

Printing Test Label #6

You can easily check the IP address and other network setup parameters by printing a test label. When an EasyLAN 100i interface board is fitted, a sixth test label becomes available. You can print test label #6 either via the Setup Mode or via a Fingerprint application.

Setup Mode

- Enter the Setup Mode by pressing the **Setup** key on the printer's built-in keyboard. The display shows:

```
SETUP
SER-COM,UART1
```

- Press the **F5** key repeatedly until the following menu appears:

```
SETUP:
PRINT DEFS
```

- Press **Enter**. The display shows:

```
PRINT DEFS:
HEAD RESIST
```

- Press the **F5** key. The display shows:

```
PRINT DEFS:
TESTPRINT
```

- Press **Enter**. The display shows:

```
<ENTER> = PRINT:
<F5> = NEXT #1
```

- Press the **F5** key repeatedly until the display shows:

```
<ENTER> = PRINT:
<F5> = NEXT #6
```

- Press the test button on the rear plate of the EasyLAN 100i interface board and keep it depressed while pressing **Enter** on the printer's keyboard. The test label is printed.
- Press the **Setup** key to leave the Setup Mode.

Fingerprint application

```
IMMEDIATE ON
OPEN "status:" FOR INPUT AS #1
IF LOC(1)<>0 THEN SETUP "PRINT_DEFS,<ENTER>_=_PRINT,<F5>_=_NEXT_#6"
IMMEDIATE OFF
RUN
```

Checking the Communication

When the printer has been physically and logically connected to the network, the LED control lamp above the RJ-45 connector on the EasyLAN 100i interface board will flash indicating network activity.

You can now use your favorite web browser to call up the home page of the printer by means of the its IP address. It will, for example, look like this:

Refer to the Intermec EasyLAN 100i User's Manual included on the CD-ROM that comes with the kit for explanations of how to use the home page to set up the printer, control the communication, and manage the printing.

> ***Note:***
> *The standard home page is stored as a number of files in the printer's permanent memory ("rom:"). It is also possible to create a custom-made home page as described in separate documentation to be published shortly.*