What is Intermec FingerPrint?

A short introduction

Intermec

A UNOVA Company

What is Fingerprint?

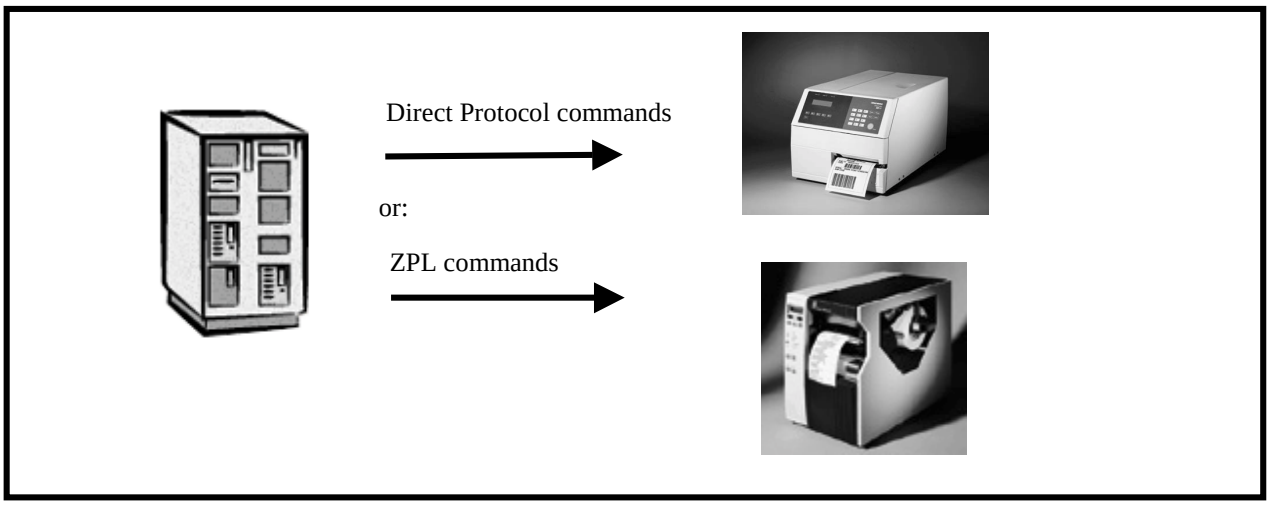
Fingerprint is the only true programming tool for printers.
It is simple-to-use yet robust allowing you to fully customize any printer function, by utilizing Fingerprint´s BASIC-like command structure. A programming tool, such as Fingerprint is completely unique to the industry. No other printer manufacturers offer such a tool. Competitive printers contain a static command language that controls the printer with the help of an attached computer, similar to using our Direct Protocol or IPL printer programming languages. Intermec printers come with a command language (Direct Protocol) and a printer-resident, dynamic application programming language (Fingerprint), which allows you to fully customize any printer function.
Intermec's Fingerprint printers are preinstalled with both a command language (Direct Protocol similar to ZPL etc.) and Fingerprint. Which one to use depends on the type of application and desired degree of software flexibility.

Printer Manufacturer	Command Language	Application Programming Tool
Intermec	IPL, Direct Protocol	Fingerprint
Datamax	DPL	N/A
Zebra	ZPL	N/A
Eltron	EPL	N/A

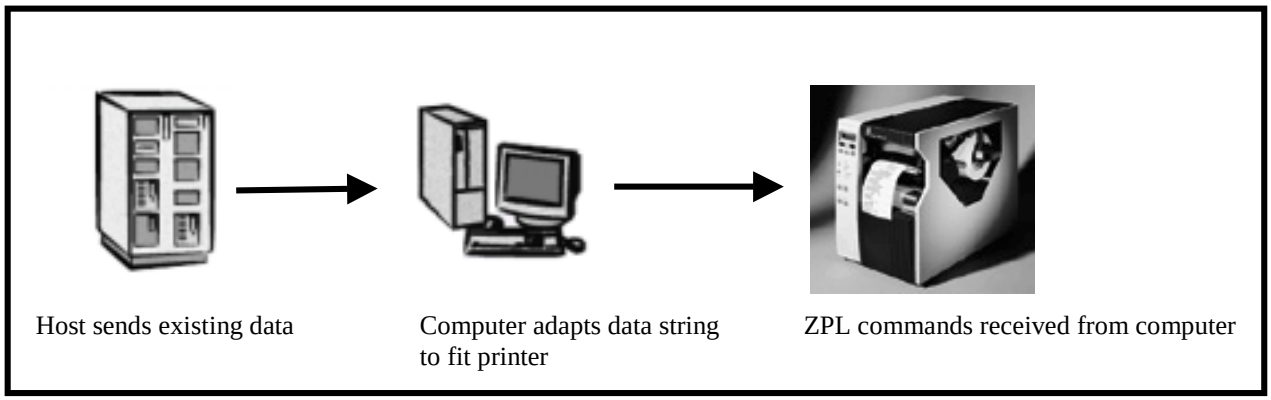
The key difference between DPL, ZPL, EPL etc. and Fingerprint is:

- Direct Protocol, DPL, ZPL, EPL etc. are static with predefined commands
- Fingerprint is dynamic and can be programmed to meet a customer's special requirements

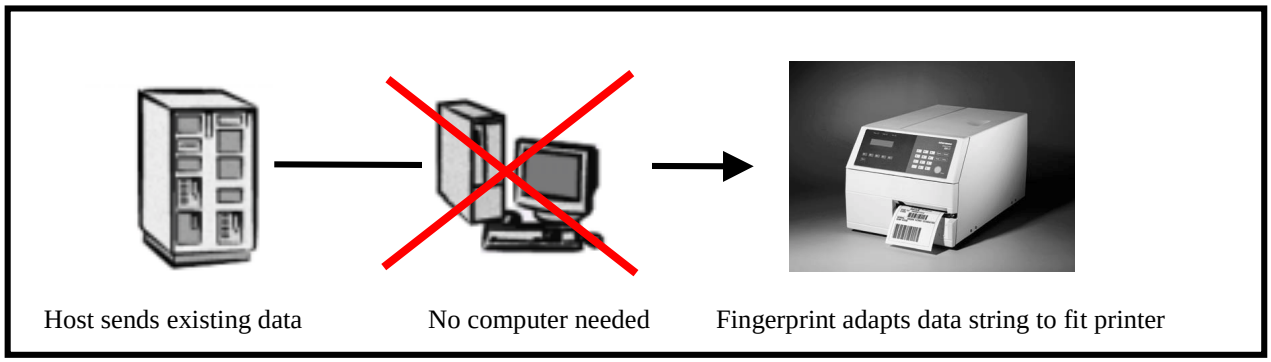
When using a command language based printer, the customer must fully adapt his system and requirements to the printer. The printer can in no way adapt to the host:



When the host software cannot be changed, a computer must be connected between the host and the command language based printer. A computer software application converts the host data into a data string that the printer will understand:

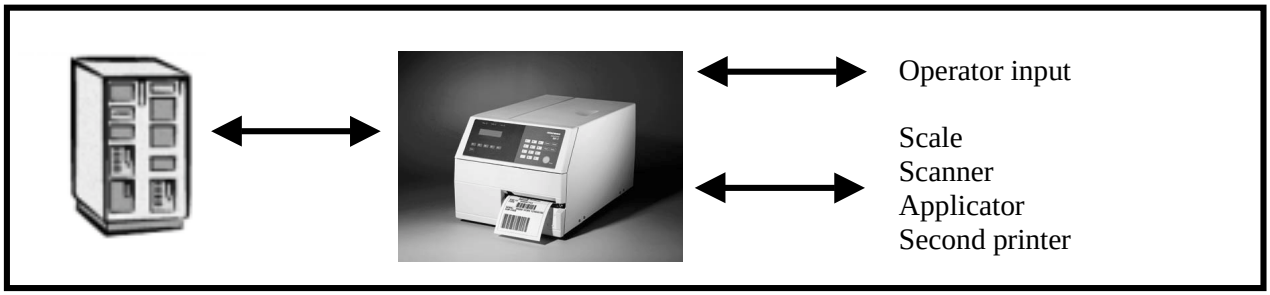


Using Fingerprint, the printer is instead programmed to receive the host data and to pick the appropriate information from the data string for printing:



Furthermore, the Fingerprint printer can also be programmed to handle:

- Operator input using the built-in keyboard and display
- Control other equipment



A Fingerprint printer is like a computer that prints, allowing for a seamless integration to an existing host system. Furthermore, Fingerprint allows for customizing any type of printer functionality, to even further meet or exceed the customer's expectations.

Some unique examples of what Fingerprint can do:

- Handle existing data strings from a host system to create labels with proper data
- Handle existing command language strings (like ZPL) from a host system
- Control other digital equipment like applicators, scales, conveyor belt signals etc.
- Customized printer display and keyboard functions for operator input
- Customized data input/output for a wide variety of interfaces
- Printer resident data bases for distributed data handling

Summary of Fingerprint benefits

- Flexible solutions tailored to a customers changing application requirements.
- A tool for resellers and system integrators to add unique value by developing own proprietary printer application programs
- Reduce development costs and time
  -no need to make changes at the host system software
- Capability to leverage many operating modes across one common printer platform within an account
- Speed of implementation (faster response to customer demands)
- Ability to integrate bar code labelling into a customers process where it was previously unattainable without major system changes.
- Printer acting as a computer can control other equipment (scale, label applicator, scanner, second printer etc)
- Less hardware to purchase, deploy and maintain.

What Intermec printers are Fingerprint capable?

The following EasyCoder printers come equipped with Fingerprint and Direct Protocol:

- Easycoder 201 II and 201 IIE
- Easycoder 401
- Easycoder 501, 501E and 501XP
- Easycoder 601, 601E and 601XP
- Easycoder F2
- Easycoder F4

Unique flexibility in real-world applications

A. Simulating other types of label printers

Problem:
The customer is using label printer from a competitor. He now wants to use Intermec printers in the same application, but doesn't want to change his host software.

Solution:
Create a Fingerprint application that uses existing data string to print the same type of label.

1. Data string is sent from the host
2. After receiving the data string, the Fingerprint application will convert the data to fit the predefined label format. Other type of data in the string, such as label format selection, paper feed commands etc. are also converted to fit the printer.
3. Print the label

Benefits:
The customer does not have to alter his host system or install a computer between host and printer.

B. Using existing data strings from host

Problem:
The host system has a line printer for printing a pick list. The customer wants to be able mark his goods with labels by adding a label printer to his system.

Solution:
A Fingerprint printer is installed between the host system and the line printer.

1. Data string is sent from the host
2. On second communication port, send the data string to the line printer for printing of pick list
3. Using the same data string, select the data to be printed and format the label
4. Print the label

Benefits:
No need to change the host systems program or to add a PC.

C. Printer with label applicator

Problem:
Print and apply a label on a package, all controlled by the printer.

Solution:
1. Data string is sent from the host
2. Pick out appropriate data for each field from the string and format the label.
3. Print the label.
4. Send signal to the applicator to apply the label.
5. Receive confirmation signal from applicator

Benefits:
No need to use a PLC or a computer to control the system.

D. Printer keyboard/display used by the operator

Problem:
The operator needs to select a specific label format or print job from his workspace.

Solution:
1. A Fingerprint application that uses the printer's LCD display to guide the operator to the desired label format. The operator then selects the desired label format by using the printer's built-in keyboard and LCD display.
2. The operator presses a key dedicated for selecting the data for the labels to be printed.
3. The printer sends the request for the data to the host.
4. The host sends the correct data to the printer that could include the label format as well as instructions to the operator.
5. The printer prints the label and the cycle is completed

Benefits:
No PC or terminal needed to communicate to the host with.

E. Distributed data handling

Problem:
The operator needs to select from different products in a database but there is no network at the production site that could provide the necessary information.

Solution:
1. The Fingerprint application is build around a database that could exist in the printer and updated with a memory card when necessary.
2. Pressing a key at the built in keyboard will select the item to be printed and the built in LCD display provides guidance for the operator.

Benefits:
No need to build a network or adding a PC at the site to host the database.

F. Weighing scale and label printer

Problem:
Print labels with price information based on weight from a scale and a best before date.

Solution:
1. A Fingerprint application where the information about the product either could be in a host or stored in the printer.
2. The scale could be connected directly to the printer.
3. The operator would then select the right item from the built in keyboard. Along with the label format information the number of days for the best before date would then be retrieved from the database either in the printer or in the host.
4. The weight information would be received as a data string from the weight and the printer would then calculate the price per kilo. The best before date would be calculated with help of the built in real time clock.

Benefits:
No extra PC or host system needed.

How do you program in Fingerprint?

When developing a Fingerprint application program, the printer needs to be connected to either a terminal or a PC. Two PC software applications are needed:

- Text editor (Windows Notepad etc.)
  - To write the Fingerprint application
- Communications program (Windows Terminal etc.)
  - To download, test and store the Fingerprint application in the printer

A command language based printer uses only static commands:

- Command Language (ZPL, DPL etc.)
  - Static commands only, like:
    - ^FO50,40
    - ^AD
    - ^FDFingerprint is Unique!^FS

Fingerprint uses both static commands (like in ZPL etc.) and dynamic instructions:

- Programming Language (Fingerprint)
  - Static commands for label format, like:
    - PRPOS 50, 40
    - FONT “SwissBold”
    - PRTXT “Fingerprint is Unique!”

  plus:

  - Dynamic programming instructions like:
    - Programming loops
      - IF…THEN… ELSE
      - WHILE…WEND
    - Branch instructions
      - GOTO
      - GOSUB…RETURN
    - Data processing commands
      - A% = A% + 3
      - PRINT STRING$(4,A$)
    - File handling instructions
      - OPEN “Partnos” FOR INPUT AS #1
    - Data Input, Output
      - INPUT #1, A$
    - Data communication
      - ON COMSET (background interrupt)
    - Action instructions
      - ON KEY (10) GOSUB Pause
      - ON ERROR GOTO Errhand
    - Printer hardware instructions:
      - Keyboard functionality
      - LCD Display and LEDs functionality
      - Beeper / Sound
      - Paper feeding
      - Communication interfaces

The dynamic programming instructions allows for developing customized printer functions, meeting any type of customer requirement. There is no restriction for handling data, keyboard/display functions or any other printer function.

Where does the Fingerprint application exist?

The Fingerprint application program is stored in the printer either in EPROM, SRAM or FLASH memory or memory card. Once the printer is powered up, the printer firmware starts to execute the program (AUTOEXEC.BAT), or waits until the host sends a request to start executing a specific program. The printer can store several programs in the resident printer file operating system, for increased flexibility.

The program can easily be updated with new functions, by downloading an upgraded or new program to the printer.

The possibility to store a Fingerprint application in the printer, makes the printer dedicated for a specific customer's needs, ready to be used in the installed environment upon power-up.