## WPL205

# DIRECT THERMAL BAR CODE PRINTER USER'S MANUAL



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### Compliances

CE Class B:

EN55022: 1998+A1: 2000+A2: 2003

EN55024: 1998+A1: 2001+A2: 2003 IEC 61000-4 Series

EN61000-3-2: 2006 & EN61000-3-3: 1995+A1: 2001

FCC Part 15, Class B

UL, CUL

C-Tick:

CFR 47, Part 15/CISPR 22 3<sup>rd</sup> Edition: 1997, Class B ANSI C63.4: 2003 Canadian ICES-003

TÜV-GS: EN60950: 2000

#### Wichtige Sicherheits-Hinweise

- 1. Bitte lesen Sie Diese Hinweis sorgfältig durch
- 2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
- Vor jedem Reinigen ist das Gerät vom Stromentz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
- 4. Die Netzanschlußsteckdose soll nahe dem Gerät angebraucht und leicht zugänglich sein.
- 5. Das Gerät ist vor Feuchtigkeit zu schützen.
- Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
- 7. Beáchten Sie beim Anschluß an das stromnetz die Anschlußwerte.
- 8. Dieses das Gerät kann bis zu einer Außentemperatur von maximal 40°C betieben werden.

### 1. Introduction

Thank you for purchasing the WASP WPL205 Direct Thermal Bar Code Printer. This printer provides both thermal transfer and direct thermal printing at user-selectable speeds of: 2.0, 3.0, 4.0 or 5.0 inches per second. It accepts roll feed, die-cut, and fan-fold labels for thermal transfer and direct thermal printing. All common bar codes formats are available. Fonts and bar codes can be printed in 4 directions, 8 alphanumeric bitmap fonts and a build-in true type font capability. You can easily print your labels with this printer.

## 2. Getting Started

### 2.1 Unpacking and Inspection

This printer has been specially packaged to withstand damage during shipping. Please carefully inspect the packaging and printer upon receiving the bar code printer. Please retain the packaging materials in case you need to reship the printer.

### 2.2 Equipment Checklist

- One printer unit
- One Windows labeling software/driver CD disk
- One sample label roll
- One label spindle (1 inch diameter core)
- Two label spindle fixed tabs
- Two 1.5" core adapter
- One Centronics interface cable
- One auto switching power supply.
- One power cord.
- One quick start guide

#### Options

- Peel off module
- External label roll mount.
- Label spindle (3-inch diameter core).
- Programmable keyboard (KU-007 series)
- Stand-alone LCD keyboard (KP-200)
- Automatic cutter module
- External Ethernet print server
- External 802.11b/g wireless print server

### **2.3 Printer Parts**

#### 2.3.1 Front View



2.3.2 Rear View



- 1. USB Interface
- 2. Centronics Interface
- 3. RS-232C DB-9 Interface
- 4. Power Jack
- 5. Power Switch
- 6. Rear Label Guide

## 3 Setup

### 3.1 Setting Up the Printer

- 1. Place the printer on a flat, secure surface.
- 2. Make sure the power switch is off.
- 3. Connect the printer to the computer with the Centronics or USB cable.
- 4 Plug the DC power cord into the power jack at the rear of the printer, and then plug the AC power cord into a properly grounded receptacle.



### 3.2 Loading Label Stock

1. Insert a 1" label spindle into a paper roll (If your paper core is 1 inch, remove the 1.5 inch core adapter from the fixing tab).



- 2. Open the printer's top cover by releasing the yellow **top cover open levers** located on both sides of the printer and lifting the top cover.
- 3. Place a roll of paper into internal paper roll mount.
- 4. Feed the paper, printing side face up, through the **label guides** and place the label over the platen.
- 5. Adjust the black center-biased label guides in or out by turning adjustment knob so they are slightly touch the edges of the label backing.



Close the printer top cover slowly and make sure the cover locks levers securely.
 Note: Failure to securely close and lock the cover will result in poor print quality.



### 3.3 Peel-Off Installation Assembly (Option)

- 1. Open the top cover.
- 2. Unscrew the 6 screws in the lower inner cover.



Screws

- 3. Turn the printer upside down.
- 4. Unscrew the 2 screws in the lower inner cover.



5. Remove the screw at memory card cover.



6. Hold the lower cover and lift up the top cover opening levers to separate the lower inner cover from the lower cover.



7. Thread the harness red connector through the cable hole at the front side of the lower inner cover. Plug the red peel-off module harness connector at location JP17 on the main board. Place the lower inner cover on the lower cover. Install the peel-off module to the lower inner cover slot.



Install one side first and install another side

- 8. Gently push peel-off panel to lock to the lower inner cover.
- 9. Reassemble parts in reverse procedures after installing the module.

### 3.4 Loading Label for Peel-off Mode (Option)

1. Open the peel-off module by pulling it out.



Peel-off Roller

- 2. Thread the label, printing side facing up, through the label guides and place it on top of the platen.
- 3. Thread the label through the liner opening, which is beneath the roller.
- 4. Adjust the black center-biased label guides by turning adjustment knob to fit the edge of the label backing.



- 5. Push the peel-off panel back to the printer.
- 6. Close the top cover.

### 3.5 External Label Roll Mount Installation (Option)

- 1. Attach an external label roll mount on the bottom of the printer.
- 2. Install a roll of label on the external label roll mount.



3. Feed the label to the external label feed opening through the rear label guide.



- 4. Open the printer top cover by pulling the top cover open levers.
- 5. Thread the label, printing side face up, through the label guide and place it on top the platen.
- 6. Adjust the label guides by turning adjustment knob to fit the edge of the label backing.
- 7. Close the printer top cover.

## 4. Power on Utilities

There are six power-on utilities to set up and test printer hardware. These utilities are activated by pressing FEED button and by turning on the printer power simultaneously.

The utilities are listed as below:

- 1. Gap/Black Mark sensor calibration
- 2. Gap/black mark sensor calibration, Self-test and Dump mode
- 3. Printer initialization
- 4. Black mark sensor calibration
- 5. Gap sensor calibration
- 6. Skip AUTO.BAS

#### 4.1 Gap/Black Mark Sensor Calibration

Gap/black mark sensor sensitivity should be calibrated at the following conditions:

- 1. A brand new printer
- 2. Change label stock.
- 3. Printer initialization.

Please follow the steps below to calibrate the gap/black sensor :

- 1. Turn off the power switch.
- 2. Press and hold the Feed button while turning the power back on.
- 3 Release the button when LED becomes **red** and blinking. (Any red will do during the 5 blinks).
  - It will calibrate the gap/black mark sensor sensitivity.
  - The LED color will be changed as following order :
    Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green
  - It calibrates the sensor and measures the label length.

#### Note:

Please select gap or black mark sensor using the GAP or BLINE command prior to calibrating the sensor.

For more information about GAP and BLINE command, please refer to WPL programming manual.

#### 4.2 Gap/Black Mark Calibration, Self-test, Dump Mode

While calibrating the gap/black mark sensor, the printer will measure the label length, print the internal configuration (self-test) and then enter the dump mode.

Follow the steps as below.

- 1. Turn off the power switch.
- 2. Press and hold the Feed button while turning the power back on.

3. Release the button when LED becomes **amber** and blinking. (Any amber will do during the 5 blinks).

The LED color will be changed as follows:
Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Note:

Please select gap or black mark sensor using the GAP or BLINE command prior to calibrating the sensor.

For more information about GAP and BLINE command, please refer to WPL programming manual.

### Self-test

The printer will print the printer configuration after gap/black mark sensor calibration. The self-test printout can be used to check if there is any dot damage on the heater element, printer configurations and available memory space.





Note:

- 1. The physical flash memory for RoHS compliant version is 2MB Flash and 2MB DRAM.
- 2. System occupies 960 KB in Flash memory so total flash memory space for user downloading is 1088 KB
- 3. System occupies 1792 KB in DRAM so total DRAM memory space for user downloading is 256 KB

#### Dump mode

The printer will enter dump mode after printing printer configuration. In the dump mode, all characters will be printed in 2 columns as shown below. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.



Dump mode printout

Note :

Turn off and on the power switch to reset the printer for normal printing.

#### 4.3 Printer Initialization

Printer initialization is used to clear DRAM and restore printer settings (with the exception of ribbon sensitivity) to defaults.

Printer initialization is activated by the following procedures.

1. Turn off the power switch.

2. Press and hold the Feed button while turning the power back on.

3. Release the button when LED turns **green** after 5 amber blinks. (Any green will do during the 5 blinks).

The LED color will be changed as following:
Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Printer configuration will be restored to defaults as outlined below after initialization.

Parameter	Default setting
Speed	WPL205, 127 mm/sec (5 ips)
Density	7
Label Width	4.25" (108.0 mm)
Label Height	2.5" (63.4 mm)
Media Sensor Type	Gap sensor
Gap Setting	0.12" (3.0 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Tear Mode	On
Peel off Mode	Off
Cutter Mode	Off
Sorial Port Sottings	9600 bps, none parity,
Senar Fort Settings	8 data bits, 1 stop bit
Code Page	850
Country Code	001
Clear Flash Memory	No

#### Note :

Always do gap/black mark sensor calibration after printer initialization.

#### 4.4 Black Mark Sensor Calibration

Set black mark sensor as media sensor and calibrate the black mark sensor.

Follow the steps below.

- 1. Turn off the power switch.
- 2. Press and hold the Feed button while turning the power back on.
- 3. Release the button when LED turns **green/amber** after 5 green blinks. (Any green/amber will do during the 5 blinks).
  - The LED color will be changed as following:
     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

#### 4.5 Gap Sensor Calibration

Set gap sensor as media sensor and calibrate the gap sensor.

Follow the steps below.

- 1. Turn off the power switch.
- 2. Press and hold the Feed button while turning the power back on.

3. Release the button when LED turns **red/amber** after 5 green/amber blinks. (Any red/amber will do during the 5 blinks).

The LED color will be changed as following:
 Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

#### 4.6 Skip AUTO.BAS

WPL programming language allows you to download an auto execution file to flash memory. The printer will run the AUTO.BAS program immediately after you turn it on. The AUTO.BAS program can be interrupted without running the program by the power-on utility.

Follow the steps below:

- 1. Turn off printer power.
- 2. Press and hold the Feed button while turning the power back on.
- 3. Release the FEED button when LED becomes **solid green**.
  - The LED color will be changed as following:
    Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green
- 4. Printer will be interrupted to run the AUTO.BAS program.

## 5. Maintenance

### 5.1 Cleaning

Use one or more of the following supplies:

- Cotton swab
- Lint-free cloth
- Vacuum
- 100% ethanol

The cleaning process is described below:

Printer Part	Method
Printer Head	1. Always turn off the printer before cleaning the print head.
	2. Allow the printhead to cool for a minimum of one minute.
	3. Use a cotton swab and 100% ethanol to clean the print head
	surface.
Platen Roller	1. Turn the power off.
	2. Rotate the platen roller and wipe it thoroughly with 100%
	ethanol and a cotton swab or lint-free cloth.
Exterior	Wipe it with water-dampened cloth.
Interior	Brush or air blow.

#### Note:

- Do not touch printer head by hand. If you touch it, please use ethanol to clean it.
- Please use industrial alcohol. Regular alcohol may damage the printer head.
- You may have to clean the supply sensors more often if you frequently receive supply error messages.

## 6. Troubleshooting

This section lists the common problems that you may encounter when operating the printer.

### 6.1 LED Status

LED Status / Color	Printer Status	Solution Number
Off	off	1
Solid Green	on	2
Flash Green	Paused	3
Flash Red	Stopped	4

#### 1. No power.

- Turn on the power switch.
- Check if the green LED is lit on power supply. If it is not lit on, power supply is broken.
- Check both power connection from the power cord to the power supply and from the power supply to the printer power jack.

#### 2. The printer is on and ready to use.

No action necessary.

#### 3. The printer is paused.

Press the feed button to resume printing.

#### 4. The printer is out of labels or the printer setting is not correct

Out of labels

Load a roll of label and follow the instructions in "Loading the Paper", then press the feed button to resume printing.

Printer setting is not correct

■ Initialize the printer by following the instructions in "Power on Utility".

## 6.2 Print Quality

#### Continuous feeding labels

The printer setting may go wrong. Please do the Initialization and Gap/Black
 Mark Calibration.

#### No print on the label

■ Is the label loaded correctly? Follow the instructions in **Loading the Paper**.

#### Poor print quality

- Top cover is not closed properly. Close the top cover completely.
- Clean the thermal print head.
- Adjust the print density setting.

## 7. Specifications

## 7.1 Printer Specifications

ltem	Specifications
Mechanism	
Resolution	203 dpi.
Max. Print Width	108 mm.
Max. Print Length	1000 mm ( 39" ).
Printing Speed	2, 3, 4 and 5 ips selectable.
	2, 3 ips selectable with peeler function.
Printing Method	Direct thermal printing.
Enclosure	
Structure	Double-walled plastic.
Dimension	Standard Model: 240mm (L) x 200mm (W) x 164mm (H)
Operation Panel	One push switch, and one indicator LED (Green,
	Orange, Red colors).
Hardware	
Sensor	Gap Transmissive sensor (offset 6 mm from center).
	Black mark reflective sensor (position adjustable).
	Head open sensor.
Memory	2M bytes on-board Flash memory
	2M bytes DRAM
Interface	RS-232C (max baud rate, 19,200 bps).
	USB: V1.1.
	Centronics.
Power	AC input: 100-240V universal auto switching power supply.
	DC output: 24V 3.75A (external adapter)
Firmware	
Font Type	8 alpha-numeric bitmap fonts, and 1 true type font.
Rotation	0, 90,180 and 270 degrees.
Barcode Format	1D bar code
	Code 39, Code 93, Code 128UCC, Code128 subsets A.B.C,
	Codabar, Interleave 2 of 5, EVN-8, EAN-13, EAN-128, UPC-A,
	UPC-E, EAN and UPC2(5) digits add-on, ITF14, MSI, PLESSEY,
	POSTNET, ChinaPOST, ITF-14, EAN-14.
	2D bar code
	PDF-417, Maxicode, DataMatrix, QR code

Command Set	WPL
Environment	
Operation	Temperature: 5°C ~ 40°C.
	Relative Humidity: 25% ~ 85% (Non Condensing).
Storage	Temperature: $-40^{\circ}$ C ~ $60^{\circ}$ C.
	Relative Humidity: 10% ~ 90% (Non Condensing).

## 7.2 Label Stock Specifications

Item	Specification
Туре	Label (Continuous , Die-cut , Fan-fold).
Wound Type	Outside wound.
Width	20mm ~ 112mm (0.79" ~ 4.4").
Length	10mm ~ 1000mm (0.4" ~ 39").
( for peel and cutter )	25.4mm ~ 1000mm (1" ~ 39").
Thickness	0.06mm ~ 0.19mm (max. 150g/m**2)
Roll Diameter	5".
Roll Core Diameter	25.4mm ~ 76.2mm (1" ~ 3").
Gap Height	2mm (min.)
Black Mark Height	2mm (min.)
Black Mark Width	8mm (min.)

## 7.3 Others

Item	Specification
Dealer Option	Peel off panel assembly
	Memory card (2, 4, 6 and 8M bytes).
	Guillotine cutter: 118 mm width
	Full cut: Paper thickness: 0.06 to 0.19mm, 500,000 cuts
	Partial cut: Paper thickness: 0.06~0.12mm, 500,000
	Cuts
	Paper thickness: 0.19mm, 200,000 cuts
User Option	Keyboard display unit (KP-200, KU-007 series), External LAN
	adapter, External roll mount (O.D. 214 mm with 1" or 3" core).

## 8. LED and Button Operation

## 8.1 LED

LED Color	Description
Green/ Solid	This illuminates that the power is on and the device is ready to
	use.
Green/ Flash	This illuminates that the system is downloading data from PC to
	memory and the printer is paused.
Amber	This illuminates that the system is clearing data from printer.
Red / Solid	This illuminates printer head open, cutter error.
Red / Flash	This illuminates a printing error, such as paper empty, paper jam,
	or memory error etc.

## 8.2 Button Operation

Feed	• Press the button when the LED is green.	
	It feeds the label to the beginning of the next label.	
Pause	<ul> <li>Press the feed button during printing.</li> </ul>	
	The printing job is suspended.	
Gap/Black Mark Sensor	1.Turn off the power switch.	
Calibration	2. Hold on the button then turn on the power switch.	
	3 Release the button when LED becomes <b>red</b> and blinking. (Any red will do	
	during the 5 blinks).	
	It will calibrate the gap/black mark sensor sensitivity.	
	The LED color will be changed as following order :	
	Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) →	
	green/amber (5 blinks) $\rightarrow$ red/amber (5 blinks) $\rightarrow$ solid green	
	It calibrates the sensor and measures the label length.	
	Note:	
	Please select gap or black mark sensor by GAP or BLINE command	
	prior to calibrate the sensor.	
	For more information about GAP and BLINE command, please refer to	
	WPL programming manual.	

Gap/Black Mark Sensor	1.Turn off the power switch.
Calibratio, Label Length	2. Hold on the button then turn on the power switch.
Measurement, Self	3. Release the button when LED becomes <b>amber</b> and blinking. (Any amber
Test and enter Dump	will do during the 5 blinks).
Mode	The LED color will be changed as following order.
	Amber $\rightarrow$ red (5 blinks) $\rightarrow$ amber (5 blinks) $\rightarrow$ green (5 blinks)
	$\rightarrow$ green/amber (5 blinks) $\rightarrow$ red/amber (5 blinks) $\rightarrow$ solid green
	It calibrates the sensor and measures the label length and prints
	internal settings then enter the dump mode.
	Note:
	Please select gap or black mark sensor by GAP or BLINE command
	prior to calibrate the sensor.
	For more information about GAP and BLINE command, please refer to
	WPL programming manual.
Printer Initialization	1. Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3. Release the button when LED turns <b>green</b> after 5 amber blinks. (Any
	green will do during the 5 blinks).
	The LED color will be changed as following:
	Amber $\rightarrow$ red (5 blinks) $\rightarrow$ amber (5 blinks) $\rightarrow$ green (5 blinks)
	$\rightarrow$ green/amber (5 blinks) $\rightarrow$ red/amber (5 blinks) $\rightarrow$ solid green
	• Always do <b>gap/black mark sensor calibration</b> after printer
	initialization.
Black Mark Sensor	1 Turn off the power switch
Calibration	2. Hold on the button then turn on the power switch.
Canoration	3. Release the button when LED turns green/amber after 5 green blinks.
	(Any green/amber will do during the 5 blinks).
	<ul> <li>The LED color will be changed as following:</li> </ul>
	Amber $\rightarrow$ red (5 blinks) $\rightarrow$ amber (5 blinks) $\rightarrow$ green (5 blinks) $\rightarrow$
	<b>green/amber (5 blinks)</b> $\rightarrow$ red/amber (5 blinks) $\rightarrow$ solid green

Gap Sensor Calibration	1. Turn off the power switch.
	2. Hold on the button then turn on the power switch.
	3. Release the button when LED turns <b>red/amber</b> after 5 green/amber
	blinks. (Any red/amber will do during the 5 blinks).
	The LED color will be changed as following:
	Amber $\rightarrow$ red (5 blinks) $\rightarrow$ amber (5 blinks) $\rightarrow$ green (5 blinks) $\rightarrow$
	green/amber (5 blinks) $\rightarrow$ red/amber (5 blinks) $\rightarrow$ solid green
Skin AUTO BAS	1. Turn off printer power
Зкір А010.ВАЗ	2. Dress the EEED butten and then turn on neuror
	2. Press the FEED button and then turn on power.
	3. Release the FEED button when LED becomes <b>solid green</b> .
	The LED color will be changed as following:
	Amber $\rightarrow$ red (5 blinks) $\rightarrow$ amber (5 blinks) $\rightarrow$ green (5 blinks) $\rightarrow$
	green/amber (5 blinks) $\rightarrow$ red/amber (5 blinks) $\rightarrow$ solid green
	4. Printer will be interrupted to run the AUTO.BAS program.